

Minnesota Plant Studies

V. GUIDE TO THE AUTUMN FLOWERS OF MINNESOTA FIELD AND GARDEN

F. R. CLEMENTS, C. D. ROSEVOLD
AND
F. K. BUTLER

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GUIDE
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AUTUMN FLOWERS OF MINNESOTA
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F. E. CLEMENTS, C. O. ROSENDAHL
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F. K. BUTTERS

University of Minnesota
Minneapolis
June 1913

Preface

The present number of "Minnesota Plant Studies" is a continuation guide to the third edition of "Spring Flowers." It is prepared for the purpose of enabling high schools to begin work with flowering plants in the fall, and thus give the student some preliminary knowledge and training as a basis for the field and garden work in the spring. For this reason, cultivated species as well as native ones are included, and special attention is given to the weeds, grasses and composites, which play such a large and practical part in fall vegetation. An endeavor has been made to include all the species found in bloom after September first. The majority begin to bloom in July and August, so that autumn and spring guides together will serve fairly well for the recognition of the summer species. For the sake of plant lovers generally, as well as for the increasing number of colleges and high schools with greenhouses, all of the common species blooming during the winter have been added also.

The flowering plants of the whole school year, from September 1 to June 15 both cultivated and native, are now covered by the two guides to spring flowers and to autumn flowers. In a few years it is expected that a summer guide will be prepared in anticipation of the time when a completely illustrated book of all the flowers of the state will be possible.

Britton and Brown's "Illustrated Flora" and Gray's "Manual" have been freely drawn upon in the preparation of the present guide, and acknowledgment is hereby made of their aid. The grouping of the families is essentially that of the Besseyan system of classification. The sequence is from pines and buttercups to pinks and mints to roses and asters, and then to lilies, grasses and orchids.

In addition to the list of publications in the following series, "Minnesota Trees and Shrubs" is also available for students and plant lovers generally. In fact, it supplants the "Guide to Trees and Shrubs," which will not be republished hereafter. "Minnesota Algae" is also valuable for schools, health officers, water and fish commissioners, as well as to others who possess microscopes.

MINNESOTA PLANT STUDIES

1. Guide to Spring Flowers, third edition (15 cents).
2. Guide to Trees and Shrubs, second edition (10 cents).
3. Guide to Ferns and Fern Allies (10 cents).
4. Minnesota Mushrooms (paper, 50 cents; cloth, \$1.00).
5. Guide to Autumn Flowers (15 cents).
6. School Gardens and Greenhouses (15 cents). (In preparation).

Copies of the above publications are sent free to residents of Minnesota. Ten copies of Nos. 1, 5 and 6 will be furnished free to the schools and colleges of the state. Additional copies may be secured at the price indicated. This is the price also for non-residents, who are not on the exchange list of the Botanical Survey.

FREDERIC E. CLEMENTS,

Head of the Department of Botany and State Botanist

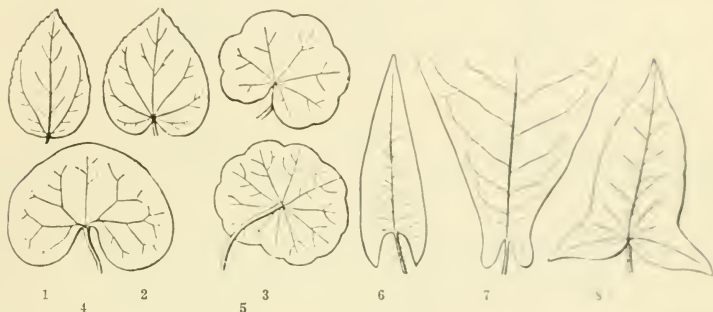
The University of Minnesota
May, 1913.

Introduction

HOW TO USE THE KEY

The method of using the keys for finding the names of plants may be shown best by taking a common flower as an example. If we choose the morning glory for this purpose, we turn to the "Key to Families" on page xi. Here it is necessary to decide first whether the petals are present or absent. Since petals and sepals are both clearly present, choice is made of "1. Petals present." Under this heading it is then necessary to decide between "1. Flowers single or in clusters," and

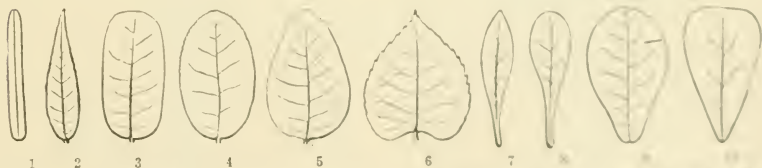
I. LEAF OUTLINES



1. Rounded. 2. Cordate (heart-shaped). 3. 4. Reniform (kidney-shaped). 5. Peltate (shield-shaped).
6. Sagittate (arrow-shaped). 7. Auriculate (eared). 8. Hastate (halberd-shaped).

"2. Flowers in heads." Examples of the latter are clover, sunflower, asters, etc. The morning glory evidently falls under "1." The next choice is between "a. Petals 3," and "b. Petals 4 or more." Since the morning glory has five petals grown into a funnel-shaped tube, "b" is chosen, and the decision then rests between "(1) Petals separate" and "(2) Petals united" and then under "(2)" between "(a) Ovary superior, i. e., within the other parts," and "(b) Ovary inferior, i. e., below the other parts." The ovary is found within the corolla tube and is consequently superior. An

II. LEAF OUTLINES AND BASES



1. Linear. 2. Lanceolate (lance-shaped). 3. Oblong. 4. Elliptic. 5. Oval. 6. Ovate (egg-shaped).
7. Oblanceolate. 8. Spatulate (spatula-like). 9. Obovate (reversed ovate).
10. Cuneate (wedge-shaped).

ferior ovary is found at the bottom of the calyx and corolla, as in the iris, the horehound, and the single flowers of dandelions, asters, etc. It is next necessary to know the number of rooms or cells in the ovary. This can be told readily from the ripe fruit as a rule, or from cutting a cross section of the ovary. If there are no cross walls, the ovary is one-celled. In the morning glory the ovary is divided into three cells so that choice is first made of "4. Ovary 3-celled," in place of "3. Ovary one-celled," or "y. Ovary 2-4 celled," fitting the plant in hand. Under "x" we find "(a) Trilocular,"

and "(y) Erect herbs, or tendril climbers." The morning glory twines or climbs without tendrils, and our plant thus belongs to the "Convolvulaceae." This family is found in the text on page 14. Here the first step is to read carefully the description of the morning glory family. If there are no points of disagreement, the plant has been traced to the right family, and it is then necessary to

III. LEAF EDGES



- | | | |
|---------------------------|-----------------------|-------------------------|
| 1. Serrate (saw-toothed). | 2. Dentate (toothed). | 3. Crenate (scalloped). |
| 4. Tndulate (wavy). | 5. Sinuate (bayed). | 6. Incised (lagged). |

determine the particular genus by reference to the key which follows the family description. The morning glory clearly falls under "1. Stems leafy, green; flowers large." The choice then lies be-

IV. LEAF TIPS



- | | | | | |
|----------------|---------------|---------------|---------------|------------|
| 1. Acuminate. | 2. Acute. | 3. Obtuse. | 4. Truncate. | 5. Retuse. |
| 6. Emarginate. | 7. Obcordate. | 8. Cuspidate. | 9. Mucronate. | |

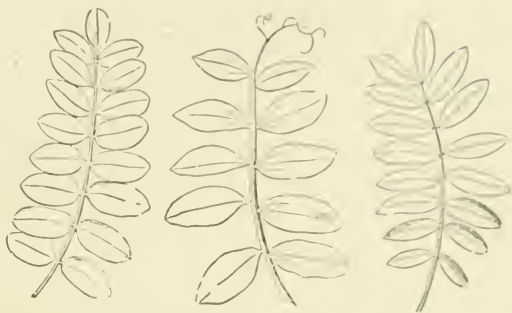
tween "a. Stigma capitate or head-like" and "b. Stigmas 2, linear." Since the stigma is one and capitate, the choice then falls between "(1) Leaves pinnately parted; corolla salver-form" and "(2)

V. LOBED LEAVES



- | | | | |
|----------------------|-----------|------------|-------------|
| Pinnately; 1. Lobed. | 3. Cleft. | 5. Parted. | 7. Divided. |
| Palmately; 2. Loced. | 4. Cleft. | 6. Parted. | 8. Divided. |

Leaves not parted; corolla funnel-form." The common morning glory shows the features mentioned in "(2)" and hence belongs to the genus "Ipomoea." Under this genus, the choice is between "1. Flowers opening in the morning" and "(2) Flowers opening at night." As the leaves are odd and cates, the morning glory belongs in "1." Under "1" the funnel-form corolla leads to the choice of "a," and under "a" the choice falls upon "(1) Leaves coriolate, entire stem hairy—*Ipomoea*."



1. Odd-pinnate. 2. Tendril-pinnate. 3. Even-pinnate.

The same method is used in locating any plant whose name is desired. The essential points in using the key are: first, that the choice must be made between two, rarely three, alternatives. These alternatives are indented the same distance from the margin, and are numbered or lettered in sequence, for example, "I" and "II," "a" and "b," and "(1)" and "(2)," "x," "y," and "z," etc. Secondly, after choice has been made of one alternative, no further attention is paid to the other alternative. In making the choice between them, however, it is essential to read both, as one often throws light

VI. COMPOUND LEAVES



4. Palmate or digitate.



5. Twice pinnate

upon the other. In the last place, it is necessary to examine the plant carefully and not merely guess at the points in question. This applies also to the technical terms which cannot be avoided if leaves and flowers are to be described accurately.

In the case of a common weed, it will often be found convenient to make use of the "Key to Weeds" on page xv. This is particularly true of weeds in the fall, since their flowers have often disappeared. It is quite possible to place them, however, from the characters of leaves and fruits by the use of the key indicated. In finding the botanical name of the sweet clover, the first choice is between "1. Leaves simple," and "2. Leaves compound." Since the leaf of the sweet clover consists of three leaflets, it evidently falls under "2." The next choice is between "a. Leaves with three leaflets," and "b. Leaves with more than three leaflets." The choice here falls upon "a" and then the decision rests between "(1) Leaf margin entire" and "(2) Leaf margin serrate or toothed." Under "(2)" the choice lies between "(a) Leaf margin coarsely serrate or toothed" and "(b) Leaf margin finely serrate." This distinction requires some experience for entire certainty, but the small teeth on the leaflet of the sweet clover would seem to indicate fairly clearly that the choice would fall upon "(b)." Under "(b)" the height of the plant and the arrangement of the flowers in a long cluster or raceme indicate that the choice should rest upon "x. Upright plants 2-6 feet tall—*Melilotus alba*: sweet clover," page xviii.

EXPLANATION OF THE CHART

The chart on page ix is designed to show the general lines of descent of flowering plants from the ancestral ferns, and to indicate the relationships of the various orders. It is based primarily upon the development of the flower as a special organ for pollination and seed-production. Families with the simplest flowers, that is, those with the flowers least changed from the fruiting organs of the ferns, are placed at the bottom of the chart. Such families are found in the gymnosperms and in the buttercup order. The flowers of the former are wind-pollinated, and lack both calyx and corolla. The flowers of most buttercups, on the other hand, are pollinated by insects, and possess both calyx and corolla, or a showy calyx. These are regarded as the primitive or earliest type of flower of the angiosperms. From the specialization of these, in response to insect and wind pollination, have been derived the orders and families of the three lines of evolution shown in the chart.

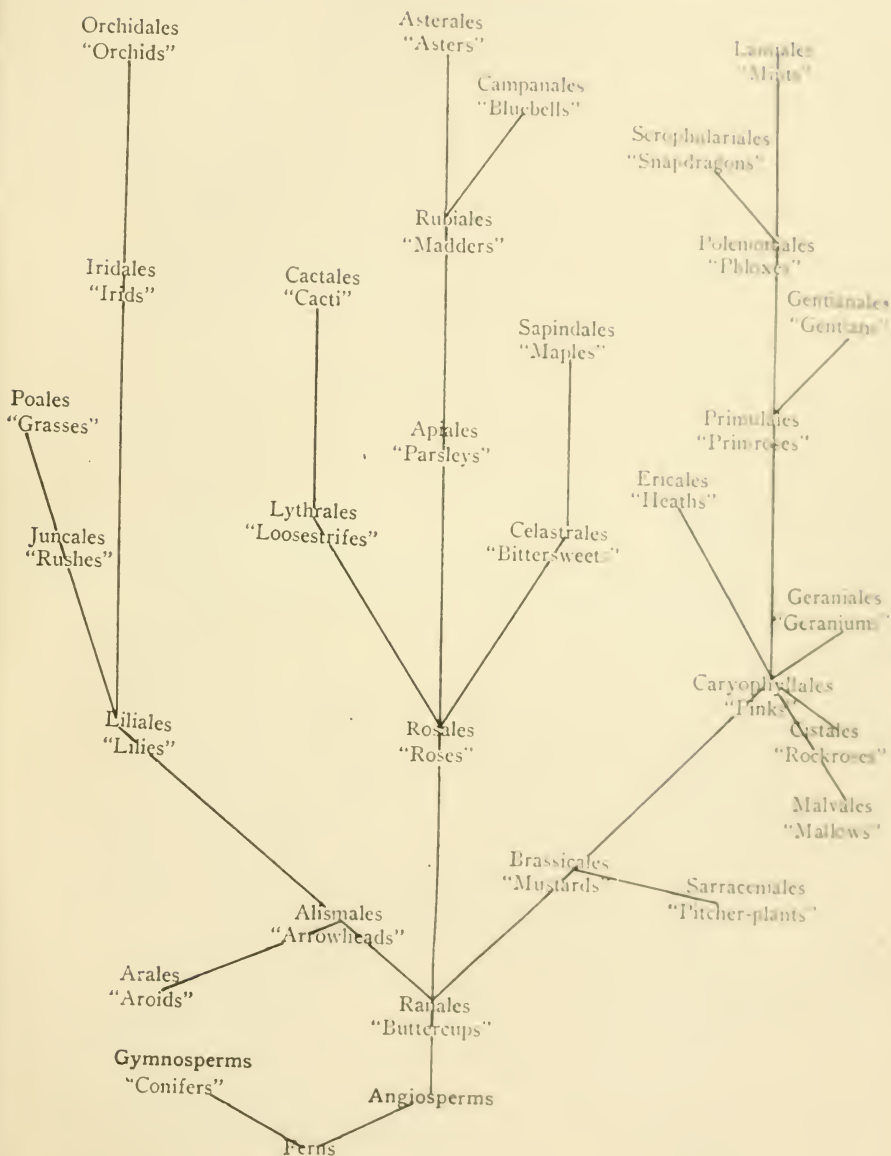
In detail, the primitive flower shows a large number of separate stamens and separate pistils, the petals are alike and separate, and there is no union between any of the four parts, sepals, petals, stamens and pistils. In the increasing adaptation of a flower to its work of pollination and seed-production, this primitive form has given rise to the higher or more specialized forms characteristic of the various orders of the chart. The chief steps by which this has been brought about are four, namely, reduction in number of parts, union, change in shape, change in position of the corolla, or elevation, but these changes have not appeared in the same sequence in all three lines. Reduction in number to a flower plan of 3, 4 or 5 has been almost universal in the groups just above the buttercups, though flowers occasionally occur with number plans of 6, 7, 8 and even 9. In flower structure, the arrowheads are essentially buttercups with parts in threes, while the lilies are arrowheads with the stamens and pistils reduced in number, and the latter united to form a compound pistil. In the irises, the colored perianth of sepals and petals is upon or above the ovary, and in the orchids, the corolla is strikingly irregular, one petal usually taking the form of a lip or sack.

In the roses, the buttercup type is modified by the gradual growing together of the calyx and receptacle, and finally of the ovary also, with the result that the corolla and stamens are above the calyx and ovary. In the lower roses, the number of stamens, and usually of pistils also is large, and the pistils are separate. In the higher families, the pistils are united into a compound pistil. In the madders and honeysuckles, the petals have become united, and finally, in most of the asters, some or all of the flowers of the characteristic heads become irregular as to their petals. In the mustards, pinks, and geraniums, the flower parts are regularly reduced to the number plan of 4 or 5, and the pistils are united. In the primroses, the petals become united, and in the snapdragons and mints, the corolla as a rule is highly irregular.

EVOLUTION AND RELATIONSHIP OF THE ORDERS

Monocotyledons

Dicotyledons



Key to Families

Page

I. Petals present

1. Flowers single or in clusters

a. Petals 3

(1) Ovary superior

(a) Pistils several-many, simple

Urticaceae 44

(b) Pistil 1, compound

x. Sepals green, or stiff and dry, unlike the petals

(x) Air plants with gray foliage

Bromeliaceae 51

(y) Land plants with green leaves and sepals

Commelinaceae 45

y. Sepals and petals similar in color and texture

(x) Sepals and petals very small, scale-like, usually greenish brown

Juncaceae

(y) Sepals and petals not scale-like nor greenish brown

m. Aquatic plants, flowers irregular

Pontederiaceae 48

n. Land plants, flowers regular or nearly so

Liliaceae 46

(2) Ovary inferior

(a) Aquatic, leaves submerged, flowers floating

Hydrocharitaceae 45

(b) Not aquatic

x. Stamens 3-6, flowers regular or moderately irregular

(x) Stamens 6

Amaryllidaceae 59

(y) Stamens 3

Iridaceae 50

y. Fertile stamens 1-2, flowers very irregular

(x) Stamen not attached to style, seeds few

Cannaceae 61

(y) Stamen or stamens attached to the style, seeds very numerous

Orchidaceae 61

b. Petals 4 or more

(1) Petals separate

(a) Petals 4

x. Flowers regular

(x) Stamens 4, at least the anther-bearing ones

Hamamelidaceae 28

(y) Stamens 6 or more

m. Stamens 6

Rubiaceae 3

n. Stamens 8 or more

(m) Stamens 8-10

r. Fleshy plants

Celastraceae 27

s. Not fleshy

(r) Ovary superior, i.e. within the other parts

h. Pod bladderly; flowers white

Sapindaceae 28

i. Pod not bladderly; flowers yellowish

Rutaceae 12

(s) Ovary inferior, i.e. below the other parts

Oxagraceae 28

(n) Stamens 12 or more

Ranunculaceae 4

y. Flowers irregular

(x) Stamens many

Hydrocaryaceae 1

(y) Stamen 1

Onagraceae 28

(b) Petals 5 or more

x. Petals 5

(x) Flowers regular

m. Pistils few-many

(m) Plants fleshy; stamens few

Cercoidaceae 27

(n) Plants not fleshy; stamens many		
r. Stamens and petals coming off with the calyx	<i>Rosaceae</i>	24
s. Stamens and pistils entirely free from the calyx	<i>Ranunculaceae</i>	1
n. Pistil 1		
(m) Pistil with a single stigma	<i>Rosaceae</i>	24
(n) Pistil with 2 or more stigmas, or the ovary lobed		
r. Stamens 5-10		
(r) Ovary 4-5-celled or 10-celled		
h. Leaves simple, entire	<i>Linaceae</i>	12
i. Leaves lobed to compound		
(h) Leaves of 3 leaflets	<i>Oxalidaceae</i>	11
(i) Leaves not of 3 leaflets		
p. Flowers yellowish	<i>Rutaceae</i>	12
q. Flowers never yellow	<i>Geraniaceae</i>	10
(s) Ovary 1-2-celled		
h. Ovary 2-celled		
(h) Ovary superior, i.e. within the other parts	<i>Saxifragaceae</i>	27
(i) Ovary inferior, i.e. below the other parts	<i>Apiaceae</i>	30
i. Ovary 1-celled		
(h) Styles 2, the ovary lobed at tip	<i>Saxifragaceae</i>	27
(i) Styles 3-5, when 2 the ovary not lobed	<i>Caryophyllaceae</i>	4
s. Stamens many		
(r) Stamens united into a column	<i>Malvaceae</i>	8
(s) Stamens not united into a column	<i>Portulacaceae</i>	6
(y) Flowers irregular		
m. Flowers spurred		
(m) Spur formed by a petal	<i>Violaceae</i>	4
(n) Spur formed by a sepal	<i>Tropaeolaceae</i>	11
n. Flowers not spurred		
(m) Stamens 6-8; ovary 2-celled	<i>Polygalaceae</i>	4
(n) Stamens 10; ovary 1-celled	<i>Fabaceae</i>	25
y. Petals apparently 6		
(x) Stamens 5; flower very irregular, one sepal spurred	<i>Balsaminaceae</i>	11
(y) Stamens 6, pistil 1; petals really 3	<i>Liliaceae</i>	46
(z) Stamens and pistils many; petals really sepals	<i>Ranunculaceae</i>	1
z. Petals many; double flowers of many families, to be determined by the beginner only when single		
(2) Petals united		
(a) Ovary superior, i.e., within the other parts		
x. Ovary 1-celled, or pistils 5, separate		
(x) Ovary 1-celled		
m. Corolla regular		
(m) Stigma 1		
r. Stamens opposite the corolla lobes	<i>Primulaceae</i>	13
s. Stamens alternate with the corolla lobes	<i>Gentianaceae</i>	17
(n) Stigmas 5	<i>Plumbaginaceae</i>	13
n. Corolla irregular		
(m) Calyx teeth with hooked bristles	<i>Verbenaceae</i>	21
(n) Calyx not bristly	<i>Gesneraceae</i>	20
(y) Pistils 5, separate	<i>Crassulaceae</i>	27
y. Ovary 2-4-celled, rarely the 2 cells separate or 4-lobed		
(x) Ovary 2-celled, or 2 ovaries united by the stigmas		
m. Corolla papery, tiny, 4-lobed	<i>Plantaginaceae</i>	14
n. Corolla not papery and tiny, rarely 4-lobed		
(m) Flowers regular; stamens as many as the corolla lobes		
r. Ovary 2-celled		

KEY TO FAMILIES

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- (r) Ovary and fruit few-seeded *Convolvulaceae* 14
- (s) Ovary and fruit many-seeded *Solanaceae* 11
- s. Ovaries 2, united at the tip only *Apocynaceae* 18
- (n) Flowers irregular; stamens 2-4, rarely 5
- r. Shrubs *Ericaceae* 21
- s. Herbs
- (r) Seeds borne directly on the ovary wall *Sesuviales* 16
- (s) Seeds borne on cup- or hook-like processes *Apurhacae* 23
- (y) Ovary 4-celled or 4-lobed
- m. Ovary 4-celled
- (m) Leaves rising directly from a creeping rootstock *Aspidistra* or *Linaceae* 46
- (n) Leaves borne on above-ground stems
- r. Leaves opposite *Verbenaceae* 21
- s. Leaves alternate, at least above
- (r) Leaves alternate throughout; fruit of 4 nutlets *Rosaceae* 17
- (s) Leaves opposite below; fruit a hooked pod *Rhamnaceae* 24
- n. Ovary 4-lobed or 4-divided
- (m) Leaves opposite; flowers mostly irregular *Lamiaceae* 21
- (n) Leaves alternate; flowers mostly regular *Rosaceae* 17
- z. Ovary 3-celled
- (x) Twiners *Convolvulaceae* 14
- (y) Erect herbs, or tendril climbers *Polemoniaceae* 14
- (b) Ovary inferior, i.e., below the other parts
- x. Woody plants *Caprifoliaceae* 32
- y. Herbs
- (x) Stamens 1-3
- m. Erect herbs *Valerianaceae* 32
- n. Climbing or trailing plants, usually with tendrils *Cucurbitaceae* 29
- (y) Stamens 4-5
- m. Sap milky; stamens often united *Campanulaceae* 32
- n. Sap not milky; stamens separate *Rubiaceae* 31
- (z) Stamens many; flowers monoecious or dioecious *Rhamnaceae* 34
- 2. Flowers in heads
- a. Ovary superior; flowers pea-like *Fabaceae* 25
- b. Ovary inferior; flowers not pea-like
- (1) Stamens united by their anthers *Asteraceae* 33
- (2) Stamens separate *Dipsacaceae* 32
- II. Petals absent
- 1. Sepals present, often petal-like, rarely very minute
- a. Calyx funnel-form, bright-colored; involucre calyx-like *Alimulaceae* 8
- b. Calyx not funnel-form
- (1) Pistils several-many
- (2) Pistil 1, at least the ovary
- (a) Stamens as many as the sepals
- x. Flowers in dense fleshy spikes *Amaranthaceae* 45
- y. Flowers not in fleshy spikes
- (x) Ovary superior
- m. Flower clusters papery because of papery bracts *Asteraceae* 33
- n. Flower clusters without papery bracts
- (m) Sepals 3 *Compositae* 40
- (n) Sepals 4 or more
- r. Stipules papery and sheathing the (junior) calyx after corolla-like *Polypodiaceae* 7
- s. Stipules not papery, or lacking
- (r) Stigma 1 *Utriculariaceae* 11
- (s) Stigmas 2-4

h. Fruit a capsule; stigmas 3	<i>Mollugaceae</i>	6
i. Fruit an achene or utricle; stigmas mostly 2		
(h) Flowers perfect or monoecious	<i>Chenopodiaceae</i>	7
(i) Flowers dioecious	<i>Moraceae</i>	10
(y) Ovary inferior		
m. Petal-like sepals forming a tube; style 1	<i>Allioniaceae</i>	8
n. Styles 2; tube lacking	<i>Apiaceae</i>	30
(b) Stamens more numerous than the sepals		
x. Sepals 4; stamens 6	<i>Brassicaceae</i>	3
y. Sepals 5, or apparently so, often petal-like		
(x) Stamens apparently numerous; fruit a capsule	<i>Euphorbiaceae</i>	12
(y) Stamens 6-8; fruit an achene	<i>Polygonaceae</i>	7
2. Sepals absent, or occasionally very minute		
a. Flowers in small heads, surrounded by 5 petal-like parts	<i>Euphorbiaceae</i>	12
b. Flowers in spikes or spikelets		
(1) Spike fleshy, with a petal-like spathe	<i>Araceae</i>	45
(2) Flowers in papery spikelets with scales		
(a) Flower enclosed in 2 scales, stem hollow, round	<i>Graminaceae</i>	50
(b) Flower with a single scale; stem solid, mostly triangular	<i>Cyperaceae</i>	49

Key to Weeds

For weeds among the grasses and composites, see the keys on pages 33 and 50

1. Leaves simple

a. Leaves not lobed or cut

(1) Plants rosette-like, mat-like or creeping

(a) Leaves large, 5-10 cm. or more, rounded; biennials or perennials

x. Leaves elliptic to ovate, in a rosette

(x) Leaves parallel-veined

Plantago major plantain

(y) Leaves netted-veined, very large

Veronica thapsus speedwell

m. Leaves densely woolly, hairy

Achillea millefolium yarrow

n. Leaves not woolly

Melissa officinalis balm mint
Chenopodium

y. Leaves round, on creeping stems

(b) Leaves small, 1-3 cm. linear to ovate, annuals

x. Leaves and stem thick and fleshy, not milky

Portulaca oleraceae purslane

y. Leaves and stem milky

(x) Leaves and stems hairy

Euphorbia maculata spurge

(y) Leaves and stems smooth

m. Seeds faintly transversely ridged and pitted

Euphorbia corollata spurge

n. Seeds strongly transversely ridged, not pitted

Euphorbia glycyphyllos spurge
Amaranthus

z. Leaves and stems neither fleshy nor milky

(x) Leaves narrow, in whorls

Mollis carpetweed

(y) Leaves broader, alternate

m. Flowers solitary in the axils

Portulaca oleraceae purslane

n. Flowers clustered in the axils

Amaranthus hybridus amaranth
retrofractus

(2) Plants erect, ascending, decumbent or climbing

(a) Stems climbing

x. Fruits triangular, flowers inconspicuous

Polygonum convolvulus bindweed

y. Fruits rounded, flowers large white

Convolvulus sepium bindweed

(b) Stems not twining nor climbing

x. Annuals

(x) Stems and leaves milky

Euphorbia hirsuta spurge

(y) Stems and leaves not milky

m. Plants bushy, tumble weeds

(m) Leaves obovate or spoon-shaped

Amaranthus spinosus tumble weed

(n) Leaves linear, somewhat fleshy

o. Stems with spiny bracts

Sida acuta flower of cotton

p. Stems not spiny, often red

Kuhnia (pigeon)

n. Plants not bushy, not tumble weeds

(m) Flowers and fruits in terminal clusters or racemes

- o. Fruit a many-seeded 4-celled pod *Onágra biénnis: evening primrose*
- p. Fruit 1-seeded
- (o) Fruit inclosed in greenish, white or pink sepals, nodes enlarged, stipules sheathing
- r. Plants 1-3 feet, racemes short and thick *Polýgonum pennsylvánicum: persicaria*
- s. Plants 1-1½ feet, racemes narrow
- (r) Sepals white or pink *Polýgonum lapathifolium: pale persicaria*
- (s) Sepals greenish *Polýgonum hydropiper: smartweed*
- (p) Fruit inclosed in fleshy-mealy sepals, stems ridged *Chenopódium álbum: goose-foot*
- (q) Fruit inclosed in dry spiny sepals
- r. Dull green, spikes dense *Amaránthus retrofléxus: pigweed*
- s. Deeper green, spikes slender *Amaránthus híbridus: green pigweed*
- (n) Flowers and fruits in the axils of the leaves
- o. Fruit a blue-black berry *Solánum nígrum: nightshade*
- p. Fruit dry, not berries
- (o) Stems four-sided, leaves cordate *Ládmium amplexicaúle: henbit*
- (p) Stems round, leaves ovate to lanceolate
- r. Leaves alternate, fruits surrounded with leafy bracts
- (r) Leaves parallel-veined, petioles sheathing *Commelína commúnis: day-flower*
- (s) Leaves net-veined, petioles not sheathing *Acalýpha virgínica: 3-seeded mercury*
- s. Leaves opposite
- (r) Plants smooth, transparent and watery *Pílea púmila: clearweed*
- (s) Plants more or less hairy, not transparent
- t. Plants tall, fruit 1 cm. or more *Siléne noctiflóra: night-flowering catchfly*
- u. Plants low, spreading, fruit less than 1 cm.
- (t) Leaves all sessile and viscid hairy *Cerástium vulgátum: mouse-ear chickweed*
- (u) Lower leaves petioled, slightly hairy *Stellária média: chickweed*
- y. Perennials or biennials
- (x) Leaves densely gray-woolly, large and basal *Verbáscum thápsus: mullein*
- (y) Leaves not woolly, mostly on the stem
- m. Leaves linear *Línária vulgaris: butter and eggs*
- n. Leaves oblong to ovate or lanceolate
- (m) Leaves alternate with sheathing stipules *Rúmex crispus: dock*
- (n) Leaves opposite without sheathing stipules
- o. Margin of leaf entire
- (o) Fruit surrounded by large green involucre *Alliónia nyctagénea:*
- (p) Fruit surrounded by close-fitting calyx *Sáponaria officinális: soap-wort*
- p. Margin of leaf serrate or toothed
- (o) Flowers in spikes or racemes, leaves not strong scented
- r. Leaves sessile, spikes dense *Verbéna stricta: hoary, vervain*

KEY TO WEEDS

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s. Leaves petioled, spikes slender

(r) Flowers in long, slender terminal spikes

Pyrolis asarifolia (L.)
Lam.

(s) Flowers in numerous axillary spikes

Cnicus arvensis (L.)
Muhl.

(p) Flowers in axillary clusters, leaves strongly serrate

Nepeta hirtellus (L.)
Rostk.

b. Leaves lobed or cut

(1) Leaves opposite

(a) Stems climbing, rough, almost prickly

Hedysarum repens (L.)
Rostk.

(b) Stems not climbing, square or squarish

x. Stems prostrate, bracted, fruit unarmed

Lycium hirsutum (L.)
Rostk.

y. Stems erect, not bracted, fruits spiny

Echinops angustatus (L.)
Rostk.

(2) Leaves alternate

(a) Stems climbing, fruit spiny

x. Fruits borne singly, four-seeded

Miconia peltata (L.)
Rostk.

y. Fruits in clusters, one-seeded

Sisyrinchium angustatum (L.)
Rostk.

(b) Stems erect or nearly so, fruit mostly smooth

x. Fruit small, flattened, 1-seeded, in clusters

Clematis integrifolia (L.)
Rostk.

y. Fruit a several to many seeded pod

(x) Pod elongated or narrow

m. Pod 6-10 cm. long, flowers cream colored

Strophium angustatum (L.)
Rostk.

n. Pod 1-2 cm. long, flowers yellow

(m) Pod sessile

Sisyrinchium angustatum (L.)
Rostk.

(n) Pod stalked

o. Pod 1 cm. or less, shorter than the spreading pedicels

Rhynchospora angustata (L.)
Rostk.

p. Pod 1-2 cm., longer than pedicels, appressed or ascending

(o) Beak $\frac{1}{3}$ - $\frac{1}{4}$ as long as pod

r. Pod 10-15 mm. long

s. Pod 2-5 cm. long

Eutima angustata (L.)
Rostk.

Helianthus angustatus (L.)
Rostk.

(p) Beak very short, pods appressed

Helianthus angustatus (L.)
Rostk.

(y) Pod rounded or triangular

m. Pod large, spiny

Urtica dioica (L.)
Rostk.

n. Pod small, flat and smooth

(m) Pod rounded, 2 seeded

Lupinus albus (L.)
Rostk.

(n) Pod triangular, many seeded

Robinia pseudo-acacia (L.)
Rostk.

2. Leaves compound

a. Leaves with 3 leaflets

(1) Leaf-margin entire

(a) Plants strong-scented, leaflets not notched at apex

Polanisia argentea (L.)
Rostk.

(b) Plants scentless, leaflets notched at apex

Urtica dioica (L.)
Rostk.

(2) Leaf margin serrate or toothed

KEY TO WEEDS

- (a) Leaf margin coarsely serrate or toothed *Potentilla monspeliensis:*
cinqufoil
- (b) Leaf margin finely serrate
 - x. Upright plants, 2-6 feet tall *Melilotus alba:* sweet clover
 - y. Plants lower, flowers in heads
 - (x) Flowers white or whitish *Trifolium repens:* white
clover
 - m. Plants creeping *Trifolium hybridum:* alsike
 - n. Plants ascending or erect *Trifolium pratense:* red
clover
 - (y) Flowers deep pink
- b. Leaves with more than 3 leaflets
 - (1) Leaves palmate
 - (a) Leaves silvery underneath, plants creeping *Potentilla argentea:* silvery
cinqufoil
 - (b) Leaves green both sides, plants tall *Cannabis sativa:* hemp
 - (2) Leaves pinnate
 - (a) Leaves with 5 (rarely 3) leaflets, flowers purple, in spikes *Petalostemon purpureus:*
prairie clover
 - (b) Leaves with numerous leaflets, flowers yellow, not in spikes *Cassia chamaecrista:* part-
ridge pea

Spermatophytes

Flowering Plants

Angiospermae

Angiosperms

Dicotyledons

Ranales Buttercup Order

Ranunculáceae—Buttercup Family

Herbs or climbing shrubs; sepals 3-15, petals 0-15, stamens 5-many, petals 3-many, from an achene, follicle or berry; flower apocarpous, apopetalous or apetalous, heterogamete, usually regular.

1. Flowers regular

a. Climbing vine

Clematis

b. Erect herbs

(1) Petals present, often much smaller than the sepals

(a) Petals conspicuous, yellow

Ranunculus

(b) Petals much smaller than the colored sepals

x. Sepals whitish; leaves palmately divided

Helleborus

y. Sepals bluish; leaves finely cut

Nigella

(2) Petals absent; sepals colored

Anemone

2. Flowers irregular

a. Upper sepal hood-like

Acronium

b. Upper sepal funnel-like or spurred

Daphnium

Clématis—Virgin's Bower, Clematis

(Gr. *klematis*, a climbing plant)

1. Leaflets toothed; flowering in summer

C. integrifolia

2. Leaflets entire; flowering in autumn

C. paniculata

Ranúnculus—Buttercup, Crowfoot

(Lat. *ranunculus*, a little frog, perhaps from its habit)

1. Leaves lobed or cut

a. Flowers yellow

(1) Flowers 1-3 cm. wide

(a) Flowers 1-2 cm. wide; stems smooth

R. repens

(b) Flowers 2-3 cm. wide; stems hairy

R. acris

(2) Flowers 4-5 cm. wide, often double

R. aquatilis

b. Flowers white

R. nemorosus

2. Leaves not lobed

a. Leaves entire, oblong or lanceolate

R. flammula

b. Leaves crenate, rounded

R. hepatica

Helleborus—Hellebore, Christmas Rose

(Gr. *helleboros*, hellebore, of ancient repute as a medicine)

Leaves lobed; flowers white to pink

H. viridis

Nigella—Ragged Lady, Maid-in-a-Mist

(Lat. *niger*, black, *-ella*, small, from the black seeds)

Leaves finely dissected, the upper enclosing the flower

N. arvensis

Anemone—Anemone, Windflower

(Gr. *anemone*, shaken by the wind, from windflower)

1. Stamens blue; peduncles 1-2

A. hepatica

2. Stamens yellow; peduncles 2-5

A. pulsatilla

PAPAVERACEAE—CAPPARIDACEAE

Aconitum—Aconite, Monkshood

(Gr. *akoniton*, monkshood, perhaps from an original rocky home)

1. Leaves 3-parted, but not divided to the base *A. columbianum*
2. Leaves 4-9-lobed, usually divided to the base
 - a. Helmet closed *A. autumnale*
 - b. Helmet open
 - (1) Helmet narrow and cone-like *A. lycoctonum*
 - (2) Helmet broad and low *A. napellus*

Delphinium—Larkspur, Rocket

(Gr. *delphinion*, larkspur)

1. Pistils 2-3; leaves coarsely lobed *D. formosum*
2. Pistil 1; leaves finely cut
 - a. Pod smooth; flowers scattered *D. consolida*
 - b. Pod downy; flowers in a dense raceme *D. ajacis*

Brassicales Mustard Order

Papaveraceae—Poppy Family

Herbs with colored or milky sap; sepals 2, petals 4-12, stamens many, ovary 1-celled, fruit a capsule; flower syncarpous, apopetalous, hypogynous, regular.

1. Leaves spiny *Argemone*
2. Leaves not spiny
 - a. Buds drooping
 - (1) Flowers 5-15 cm. wide; sap white *Papaver*
 - (2) Flowers 1-2 cm. wide; sap yellow *Chelidonium*
 - b. Buds erect or nearly so
 - (1) Leaves pinnatifid; sap saffron *Glaucium*
 - (2) Leaves dissected; sap colorless *Eschscholtzia*

Argemone—Prickly Poppy

(Gr. *argemone*, a kind of poppy)

1. Flowers yellow; leaves spotted *A. mexicana*
2. Flowers white; leaves not spotted *A. intermedia*

Papaver—Poppy

(Lat. *papaver*, poppy)

1. Stems leafy
 - a. Leaves oblong, toothed, smooth and glaucous *P. somniferum: opium p.*
 - b. Leaves pinnatifid, bristly, green
 - (1) Plant 1 m. high; flowers 1-2 dm. wide *P. orientale: oriental p.*
 - (2) Plant ½ m. high; flowers ½ dm. wide *P. rhoas: corn p.*
2. Stems leafless
 - a. Leaf divisions entire or somewhat cleft; capsule roundish *P. nudicaule: Iceland p.*
 - b. Leaf divisions finely cut; capsule club-shaped *P. alpinum: alpine p.*

Chelidonium—Celandine

(Gr. *chelidonium*, swallow)

- Leaves pinnate or twice pinnatifid; flowers yellow *C. majus*

Glaucium—Horned Poppy

(Gr. *glaucium*, the juice of the horned poppy)

- Leaves pinnatifid; flowers yellow; pod beaked *G. luteum*

Eschscholtzia—California Poppy

(Named for the collector, Eschscholtz)

- Leaves dissected; flowers orange-yellow *E. californica*

Capparidaceae—Caper Family

Herbs with compound leaves; sepals 4, petals 4, stamens 6-12, ovary 2-celled, flower syncarpous, apopetalous, hypogynous, regular.

1. Flowers pink; stamens 6 *Cleome*
2. Flowers yellowish; stamens 10-12 *Polanisia*

Cléome—Cleome, Rocky Mountain Bee-plant
(Of uncertain origin and meaning)

Leaves of 3 leaflets; flower pink; ovary stalked

C. spinulosa

Polanisia—Polanisia

(Gr. **polys**, many, **anisos**, unequal, referring to the unequal meanings)

Leaves of 3 leaflets; flowers yellowish; ovary nearly sessile

P. grandiflora

Brassicaceae—Mustard Family

Herbs; sepals 4, petals 4, stamens 6 or 4, 2 shorter, ovary 2-celled, fruit a silique, longer syncarpous, apopetalous, hypogynous, usually regular.

1. Pod globose, rounded or triangular

a. Pod globose

Allysum

b. Pod round and flat

(1) Flowers tiny, whitish or greenish

Lepidium

(2) Flowers larger, white or purple, two petals larger

Iberis

c. Pod triangular

Bursa

2. Pod oblong to linear

a. Pod remaining closed when ripe

Raphanus

b. Pod opening by two valves when ripe

(1) Pod beaked at the tip

Brassica

(2) Pod not beaked at the tip

x. Seeds in one row in each cell; flowers usually purple to red

Matthiola

y. Seeds in two rows in each cell; flowers yellow or white

Sisymbrium

(x) Pods awl-shaped

Roripa

(y) Pods oblong to almost round

Alýssum—Sweet Alyssum

(Gr. **alýssos**, curing madness, probably from supposed medical qualities)

Leaves lanceolate or linear; flowers white, fragrant

A. maritimum

Lepídium—Pepper-grass

(Gr. **lepidon**, little scale, referring to the pods)

1. Flowers greenish; petals lacking

L. apulum

2. Flowers white; petals present

L. virginicum

Iberis—Candytuft

(From Iber, the early name of Spain)

Leaves lanceolate to linear; flowers purplish

I. umbellata

Bursa—Shepherd's Purse

(Lat. **bursa**, purse, referring to the pods)

Leaves deeply cut, often entire on the stem; flowers white

B. bursa-pastoris

Brassica—Cabbage, Mustard

(Lat. **brassica**, cabbage)

1. Cultivated

a. Leaves smooth, glaucous; flowers pale yellow

B. oleracea—cabbage

b. Leaves hairy, green; flowers brighter yellow

B. campestris—mustard

2. Weeds

a. Pod $2\frac{1}{2}$ -5 cm. long, beak 6-15 mm. long

B. flacca—mustard

b. Pod 1-2½ cm. long, beak 2-10 mm. long

B. nigra—black m.

(1) Beak 2-4 mm. long

B. arvensis—cress

(2) Beak 8-10 mm. long

Raphanus—Radish

(Gr. **rha**, quick, **phanos**, appearing, referring to the germination)

1. Cultivated; flowers pink to white, pods 2-3-seeded

R. sativus

2. Weed; flowers yellow, then white, pods 4-10-seeded

R. raphanistrum

Matthiola—Stock, Gilliflower

(Named for the Italian botanist, Matthioli)

1. Stem herbaceous; annual
2. Stem woody at base; perennial

M. ánnua
M. incána

Sisymbrium—Hedge Mustard

(Gr. name of some mustard)

1. Pod 1-2 cm. long; flowers yellow
2. Pod 6-10 cm. long; flowers cream-colored

S. officinále
S. áltissimum

Nastúrtium—Cress, Horseradish

(Lat. *nastúrtium*, cress, from *nasus tortus*, due to its pungency)

1. Cultivated; flowers white
 - a. Aquatic; leaves pinnate
 - b. Terrestrial; leaves large, simple, crenate

N. officinále: water cress
N. armordácia: horse-radish

2. Native; flowers yellow
 - a. Stems spreading, 1-2 dm. high
 - b. Stems erect, 3-8 dm. high

N. sinuátum
N. palústre

Polygaláceae—Milkwort Family

Herbs with entire leaves; sepals 5, 2 larger, petals 3, somewhat united, stamens 8, ovary 2-celled, fruit a capsule; flower syncarpous, slightly sympetalous, hypogynous, somewhat zygomorphic.

Polýgala—Milkwort

(Gr. *polys*, much, *gala*, milk, from its supposed virtue in increasing the flow of milk)

Leaves linear, whorled; flowers whitish

P. verticilláta

Resedáceae—Mignonette Family

Low herbs, with simple entire or lobed leaves; sepals 4-7, petals 4-7, irregular, stamens 10-40, ovary 1-celled, of 3-6-carpels, fruit a capsule; flower syncarpous, apopetalous, hypogynous, zygomorphic.

Reséda—Mignonette

(Lat. *reseda*, a medicinal plant, from *resedare*, to allay)

Leaves oblong, entire or 3-lobed; flowers greenish, fragrant

R. odoráta

Violáceae—Violet Family

Low herbs, with simple entire to deeply cut leaves; sepals 5, petals 5, 1 spurred, stamens 5, ovary 1-celled, carpels 3, fruit a capsule; flower syncarpous, apopetalous, hypogynous, zygomorphic.

Viola—Violet, Pansy, Heart's-ease

(Lat. *viola*, violet)

1. Flowering stems leafy; stipules large
 - a. Spur short, blunt
 - (1) Flowers large, 3-5 cm. wide
 - (2) Flowers small, 1-2 cm. wide
 - b. Spur long, acute
2. Flowering stems leafless; stipules lacking
 - a. Lobes of the leaf broad, especially the middle one
 - b. Lobes narrow, linear

V. tricolor: pansy
V. arvensis: field p.
V. cornúta
V. palmáta
V. pedáta

Caryophyllales Pink Order

Caryophylláceae—Pink Family

Herbs with opposite entire leaves; sepals 4-5, petals 4-5, rarely none, stamens 4-10, ovary 1-celled, rarely 2-5-celled, styles 2-5, fruit a capsule; flower syncarpous, apopetalous, hypogynous, regular.

1. Sepals united
 - a. Styles 2
 - (1) Calyx with scales at base
 - (2) Calyx without basal scales
 - (a) Calyx pyramidal, the angles winged in fruit

Dianthus
Vaccaria

CARYOPHYLLACEAE

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- (b) Calyx oblong or bell shaped
 - x. Calyx oblong; flowers large
 - y. Calyx bell-shaped; flowers tiny

Saponaria
Gypsophila

b. Styles 3-5

(1) Styles 3

(2) Styles 4-5

Silene
Lysimachia

2. Sepals not united

a. Styles 3-4

b. Styles 5

Stellaria
Cerastium

Dianthus—Pink, Carnation

(Gr. *dio-*, of Jupiter, *anthos*, flower)

1. Flowers in a flat-topped cluster; petals toothed

D. barbatus carnation
barbatus

2. Flowers single or but 2-3 in a cluster

a. Petals cut-fringed

D. plumarius fringed pink

b. Petals merely toothed

(1) Flowers 3-5 cm. wide, usually double

D. caryophyllus common
town, double pink

(2) Flowers 1-2 cm. wide, single

D. barbatus carnation
pink

Vaccaria—Vaccaria, Cow Pink

(Lat. *vacca*, cow; of doubtful application)

Leaves lanceolate, clasping; flowers pink

V. vulgaris

Saponaria—Bouncing Bet, Soapwort

(Lat. *sapo*, soap, from the soapy juice)

Leaves ovate to lanceolate; flowers pinkish

S. officinalis

Gypsophila—Gypsophila

(Gr. *gypsos*, chalk, *philos*, loving)

1. Stems 3 dm. high, annual; flowers 6-8 mm. wide

G. elegans

2. Stems 6-10 dm. high, perennial; flowers 2-3 mm. wide

G. paniculata

Silene—Catchfly, Campion

(Probably from Gr. *sialos*, saliva, from the sticky stems)

1. Plant more or less sticky

a. Plant very sticky and hairy; night-flowering

S. noctiflora

b. Plant sticky near the joints, not hairy; day-flowering

(1) Leaves lance-linear; flowers small, panicle

S. nuttalliana

(2) Leaves lance-ovate, glaucous; flowers showy in cymes, pink

S. arvensis

2. Plant not sticky; calyx bladdery; petals white

S. acaulis

Lychnis—Corn-cockle, Ragged Robin

(Gr. *lychnos*, lamp, from the use of one species for wick)

1. Sepal lobes long and leaf-like

L. viscaria

2. Sepal lobes not leaf-like

a. Plant white-cottony

L. viscaria

b. Plant not white-cottony

(1) Petals heart-shaped

L. viscaria

(2) Petals deeply lobed

(a) Petals 2-lobed

x. Flower red, perfect

L. chalcedonica

y. Flower white, dioecious

L. alba

(b) Petals 4-lobed; flower often double

L. viscaria

Stellaria—Starwort, Chickweed

(Lat. *stellaria*, star-like, from the flower)

Leaves oblong to ovate; petals 2-cleft

S. media

Ceratium—Chickweed

(Gr. *kerastion*, little horn, from the form of the pod)

Leaves ovate, soft-hairy; petals shorter than calyx

C. vulgatum

Portulacaceae—Purslane Family

Fleshy herbs; sepals 2, rarely 5, petals 4-5, stamens 4-30, ovary 1-celled, style usually 3-cleft; flower syncarpous, apopetalous, hypogynous, somewhat irregular.

Portulaca—Purslane, Moss Rose

(Lat. *portulaca*, purslane)

1. Leaves flat, wedge-shaped; flowers 5-6 mm. wide, yellow

P. oleracea

2. Leaves round, linear; flowers 3-5 cm., many-colored

P. grandiflora

Mollugaceae—Carpetweed Family

Low herbs with opposite or whorled leaves; sepals 5, petals 0, stamens 3, 5 or more, ovary 3-5-celled, stigmas 3, fruit a capsule; flower syncarpous, apetalous, hypogynous, regular.

Mollugo—Carpetweed

(Lat. *mollis*, soft, from its carpet-like nature)

Leaves spatulate, whorled; sepals white inside

M. verticillata

Amarantaceae—Amaranth Family

Herbs with simple leaves; sepals 5, rarely 3, petals 0, stamens 5, rarely fewer, pistil 1-celled, stigmas 2-3, fruit a utricle; flower syncarpous, apetalous, sometimes monoecious or dioecious, hypogynous, regular.

1. Leaves alternate

a. Bracts greenish; flowers imperfect

(1) Pistillate flowers with calyx

Amarantus

(2) Pistillate flowers without calyx

Acnida

b. Bracts colored; flowers perfect

Celosia

2. Leaves opposite

a. Flower cluster a dense terminal head

Gomphrena

b. Flowers in small terminal and axillary clusters

(1) Leaves lanceolate to spatulate; stamens 5, staminoids 5

Telanthera

(2) Leaves broad-ovate or orbicular; stamens 5

Iresine

Amarantus—Amaranth

(Gr. *amarantos*, unfading, from the papery bracts)

1. Flowers in dense terminal clusters

a. Spikes red, drooping

A. caudatus: prince's
feather

b. Spikes green, erect

(1) Spikes 8-16 mm. thick

A. retroflexus: pigweed

(2) Spikes 4-6 mm. thick

A. hybridus

2. Flowers in small axillary clusters

a. Erect, bushy; sepals 3

A. graecizans

b. Prostrate, spreading; sepals 4-5

A. blitoides

Acnida—Water-hemp

(Gr. *a-*, without, *knide*, nettle, the bracts not spiny)

Leaves lanceolate, entire; flowers green

A. tamariscina

Celosia—Cockscomb

(Gr. *kelos*, burning, dry, from the color or texture of the flowers)

1. Spikes comb-like

C. cristata

2. Spikes plummy to cylindric

C. argentea

Gomphrena—Globe Amaranth, Everlasting

(Of doubtful origin and meaning)

Leaves oblong, sessile; heads round, crimson to white

G. globosa

Telanthera—Telanthera

(Gr. *telos*, end, *anthera*, flower, anther, perhaps from the *stamens*.)

Leaves lanceolate to spatulate, varicolored

T. lamellata

Iresine—Iresine

(Gr. *eiresione*, a wreath, wound with wool, from the woolly calyx.)

Leaves ovate or rounded, red; calyx woolly

I. Bickering

Chenopodiaceae—Goosefoot Family

Herbs with simple fleshy leaves; sepals 5-6, more or less united, petals 12, sometimes 14, honey-scented, stigmas 2-4, fruit an achene or utricle; flower syncarpous, apetalous, perfect or imperfect; hypogynous, regular.

1. Cultivated

a. Flowers perfect

(1) Leaves large, oblong-ovate

Beta

(2) Leaves small, linear

Kochia

b. Flowers dioecious

Spergularia

2. Weeds

a. Leaves flat, usually lobed

Chenopodium

b. Leaves awl-shaped, prickly pointed

Salsola

Béta—Beet, Mangel Wurzel

(Lat. *beta*, beet)

Leaves long ovate, large; root globose to conical

B. vulgaris

Kóchia—Mock Cypress

(Named for the German botanist, Köch)

Leaves linear, ciliate, 5-8 cm. long; plant pyramidal

K. coccinea

Spinácia—Spinach

(Lat. *spina*, spine, perhaps from the spines of the fruiting calyx)

Leaves ovate to deltoid; flowers dioecious, axillary

S. blanda

Chenopodium—Goosefoot, Lambs-Quarters

(Gr. *chen*, goose, *podion*, little foot, from the shape of the leaves)

1. Leaves mealy, pale, lanceolate to ovate; edible

C. album

2. Leaves smooth, green, cordate, angle-toothed; unpleasantly scented

C. hybridum

Sálsola—Russian Thistle

(Lat. *salsus*, salty, *-ola*, little, from its home on seashores)

Leaves awl-shaped, prickly; bracts spiny, calyx winged

S. kila

Polygonaceae—Buckwheat Family

Herbs with entire leaves and papery sheathing stipules; sepals 4-6, united, petals 6, sometimes 4-6, ovary 1-celled, stigmas 2-3, fruit an achene; flower syncarpous, apetalous, usually perfect; hypogynous, regular.

1. Calyx of 4-5 sepals, often petal-like

a. Leaves halberd- or arrow-shaped; flowers white

Eriogonum

b. Leaves linear to ovate; flowers greenish to pink

Polygonum

2. Calyx of 6 sepals, usually of 2 kinds

a. Leaves rounded, 4-8 dm. wide, with edible stalks

Rumex

b. Leaves oblong to arrow-shaped, small to medium

Rumex

Fagopyrum—Buckwheat

Stamens 8, styles 3; achene triangular

F. esculentum

Polygonum—Knotweed, Heartsease

(Gr. *polys*, many, *gonu*, knee, from the jointed stem)

1. Flowers single or clustered in the axils of the leaves

a. Cultivated; 2-4 m. high; leaves 2-3 dm. long

P. convolvulus (wild)

b. Native; less than 1 m. high

P. convolvulus (wild)

(1) Low, spreading, 1-2 dm. high

P. convolvulus (wild)

- (2) Tall, erect, 5-10 dm. high
2. Flowers in terminal clusters
- a. Leaves lance-shaped to ovate
- (1) Leaves dotted and sharp to the taste
- (2) Leaves neither dotted nor sharp
- x. Spikes nodding
- (x) Leaves ovate; flowers pink; stamens 7
- (y) Leaves long lanceolate; flowers flesh-colored; stamens 6
- y. Spikes erect
- (x) Flowers bright pink; stamens 8
- (y) Flowers greenish-pink; stamens 6
- (z) Flowers white
- b. Leaves heart-shaped or arrow-shaped; twining or climbing
- (1) Calyx winged in fruit
- (2) Calyx not winged

*P. tenue**P. hydropiper*: smart-weed*P. orientalis*: prince's feather*P. lapathifolium**P. pennsylvanicum**P. persicaria*: lady's thumb*P. bistorta*: bistorta*P. scandens*: climbing buckwheat*P. convolvulus*: bindweed**Rúmex—Dock, Sorrel**(Lat. *rumex*, sorrel)

1. Leaves arrow-shaped, sour
2. Leaves lance-oblong, somewhat bitter
- a. Leaves curled at edges; valves of flower grain-bearing
- b. Leaves hardly curled; usually 1 valve grain-bearing

R. acetosella: sheep sorrel*R. crispus*: dock*R. obtusifolius*: dock**Rhéum—Rhubarb, Pie-plant**(Gr. *rheon*, name of a medicinal plant)

Leaves large, rounded, petiole fleshy, sour; flowers white

*R. rhaponticum***Allioniaceae—Four O'Clock Family**

Herbs with simple leaves; sepals 5, united into a bright corolla-like tube, petals 0, stamens 3-5, ovary 1-celled, fruit 1-seeded, achene-like, enclosed in the base of the calyx; flower syncarpous, synsepalous, apetalous, apparently epigynous, usually regular.

1. Flowers many in an involucre of 5 separate bracts
2. Flowers few in a 5-lobed involucre; stamens 3
3. Flowers single in a 5-parted involucre; stamens 5

*Abronia**Allionia**Mirabilis***Abrónia—Abronia**(Gr. *abros*, pretty, which the flowers are)

1. Stems prostrate; flowers day-blooming, rose-purple
2. Stems ascending; flowers night-blooming, white

*A. umbellata**A. fragrans***Alliónia—Wild Four O'Clock**

(Named for the Italian botanist, Allioni)

1. Leaves ovate, petioled
2. Leaves oblong, lance-shaped or linear
- a. Leaves oblong to lance-shaped, hairy
- b. Leaves linear, smooth

*A. nyctagínea**A. hirsuta**A. linearis***Mirábilis—Four O'Clock, Marvel-of-Peru**(Lat. *mirabilis*, wonderful, from the beautiful night-blooming flowers)

Leaves ovate, entire; flowers varicolored

*M. jalapa***Malvales Mallow Order****Malváceae—Mallow Family**

Herbs or shrubs, with alternate, simple, often lobed leaves; sepals 5, petals 5, stamens many, united by their filaments, ovaries several to many, separate or usually united, often falling away as one-seeded fruits, or the fruit a capsule.

1. Anthers clustered at top of filament tube; ovaries united in a long, separating fruit

a. Stigmas linear

- (1) Cells 1-seeded

(a) Involucre of 6-9 more or less united bracts

Althaea

(b) Involucre of 1-3 bracts, or lacking

x. Involucre of 3 bracts; carpels not beaked

Malva

y. Involucre of 1-3 bracts or none; carpels beaked

Trichostema

- (2) Cells 3-several-seeded; involucre none

Alchamix

b. Stigmas capitate; flowers yellow to orange-red

Malvastrum

2. Anthers along the filament tube; fruit a 3-several-lobed capsule

a. Style branches or stigmas 10

Malvastrum

b. Style branches or stigmas 3-5

- (1) Involucre of many narrow bracts; seeds not hairy

Ribes

- (2) Involucre of 3 large leaf-like bracts; seeds cottony

Gossypium

Althaea—Marsh Mallow, Hollyhock

(Gr. *althaia*, marsh mallow, from its healing properties)

1. Flowers 2-4 cm. wide, rose, in axillary clusters

A. officinalis marsh
mallow

2. Flowers 6-15 cm. wide, varicolored, often doubled in long spikes

A. rosea Argemone

Malva—Mallow, Cheeses

(Gr. *malache*, Lat. *malva*, mallow, from its medicinal)

1. Flowers about 1 cm. wide, white or pale blue, carpels about 15

M. rotundifolia flowers

2. Flowers 2-5 cm. wide

a. Leaves with shallow lobes; flowers red-purple; carpels 10

M. sylvestris hollyhock

b. Leaves deeply lobed; flowers pink to white; carpels 15-20

- (1) Leaves twice-lobed, divisions linear; carpels hairy

M. moschata mallow

- (2) Leaves once-lobed; carpels smooth

M. alba mallow

Callirrhoe—Callirrhoe

(Gr. *callirrhoe*, beautiful-flowing, a famous spring at Athens)

1. Leaves triangular-ovate, somewhat lobed; flowers deep purple

C. franseria

2. Leaves round, deeply palmately lobed; flowers red-purple

C. tinctoria

Abutilon—Velvet Leaf

(Arabic name)

Leaves large, velvety, round-ovate; flowers yellow

A. indicum

Malvastrum—Red Mallow

(Lat. *malva*, mallow, *-astrum*, like, from its medicinal)

Leaves palmate, 3-5-parted, silvery-scurfy; flowers 1-2 cm. wide

M. virginicum

Malvaviscus—Malvaviscus

(Lat. *malva*, mallow, *viscus*, glue, from the sticky fruit)

Leaves heart-shaped; flowers scarlet

M. axillaris

Hibiscus—Hibiscus, Rose-Mallow

(Gr. *hibiskos*, name of some mallow)

1. Shrub; flowers red or varicolored, about 1 dm. wide

H. rosa-sinensis rose of
China

2. Herbs

a. Low coarsely hairy weed; flower 2-5 cm. wide

H. trionum flower of
arbutus

b. Tall smooth or downy herbs

- (1) Capsule ovoid, 2-4 cm. long; flowers pink to white

(a) Leaves smooth on both sides

H. mollis hollyhock

(b) Leaves hairy below, sometimes above also

H. scaberrimus hollyhock

- (2) Capsule long and pod-like, 1-3 dm. long, flower yellowish

H. syriacus hollyhock

Gossýpium—Cotton
(Name from the Arabic)

Leaves 5-lobed; flowers yellow, purple inside at base

G. herbáceum

Moráceae—Mulberry Family

Herbs with opposite or alternate lobed leaves; sepals 5, more or less united, petals 0, stamens 5 ovary 1-celled, stigmas 2, fruit an achene; flower syncarpous, synsepalous, apetalous, dioecious, hypogynous, regular.

1. Tall erect herb, leaves divided to the base into 5-11 lance-linear divisions *Cannabis*
2. Twining herb with 3-7 lobed leaves; fruit cone-like *Humulus*

Cánnabis—Hemp
(Lat. *cannabis*, hemp)

Plant 1-4 m. high; flowers green, in axillary spikes

C. satíva

Húmulus—Hop

(Lat. *humus*, ground, -*ulus*, little, perhaps from its clambering habit)

Leaves rough, ovate in outline; fruit clusters 3-8 cm. long

H. lupulus

Urticáceae—Nettle Family

Herbs with opposite or alternate leaves, sometimes with stinging hairs; sepals 3-5, sometimes united, petals 0, stamens 3-4, ovary 1-celled, stigma 1, fruit an achene; flower syncarpous, apetalous, polygamous, monoecious or dioecious, hypogynous, regular.

1. Leaves opposite
 - a. Armed with stinging hairs *Urtica*
 - b. Smooth and without stinging hairs *Pilea*
2. Leaves alternate, without stinging hairs *Parietaria*

Urtica—Nettle

(Lat. *urtica*, nettle, from *uro*, to burn, from the stinging hairs)

1. Leaves hairy, heartshaped at base *U. dióeca*
2. Leaves smooth or nearly so, round at base *U. grácilis*

Pilea—Richweed, Clearweed

(Lat. *pileus*, cap, from the cap-like sepal of one species)

Stems clear, 1-4 dm. high; leaves ovate, 3-ribbed

P. púmila

Parietária—Pellitory

(Lat. *parietaria*, on walls, from *paries*, wall)

Low annual herb; leaves lance-oblong

P. pennsylvánica

Geraniales Geranium Order

Geraniáceae—Geranium Family

Herbs, or some shrubby, with simple lobed or compound leaves; sepals 5, petals 5, stamens 5 or 10, ovary 5-celled, stigmas 5, fruit separating at maturity into 5 achene-like parts; flower syncarpous, apopetalous, hypogynous, regular.

1. Leaves entire to palmately divided
 - a. Flowers regular; stamens with anthers 10 *Geranium*
 - b. Flowers somewhat irregular; stamens with anthers 7-8 *Pelargonium*
2. Leaves pinnate; stamens with anthers 5 *Erodium*

Geránium—Cranesbill

(Gr. *geranos*, crane, referring to the form of the fruit)

1. Flowers red
 - a. Flowers 1 cm. wide; leaves 3-parted *G. robertianum*: herb
Robert
 - b. Flowers 2-4 cm. wide; leaves 7-parted *G. sanguineum*
2. Flowers blue or violet *G. ibéricum*
3. Flowers white or pink *G. Richardsónii*

Pelargonium—Geranium

(Gr. *pelargos*, stork, referring to the form of the fruit)

1. Plant trailing; leaves ivy-like, petiole attached to lower surface *P. peltatum* var. *g.*
2. Plant erect, not trailing
 - a. Leaves with shallow lobes, marked with a semicircular band, branches fleshy *P. hortorum* (Geranium)
 - b. Leaves distinctly or deeply lobed, usually not zoned; branches woody
 - (1) Leaves rarely lobed to the middle, fragrant *P. elatagium* (Lutea Washington D.C.)
 - (2) Leaves lobed beyond the middle, often to the base, fragrant
 - (a) Lobes oblong *P. graveolens* var. *g.*
 - (b) Lobes linear *P. striatum* var. *g.*

Erodium—Storksbill

(Gr. *erodios*, heron, referring to the form of the fruit)

- Low, spreading; leaves pinnate, hairy; flowers pink *E. cicutarium*

Oxalidaceae—Oxalis Family

Low, usually stemless herbs, with 3-foliate leaves and acid sap; sepals 5, petals 5, numerous stamens 10, ovary 5-celled, stigmas 5, fruit a capsule; flower syncarpous, apopetalous, hypogynous, regular.

Oxalis—Oxalis, Wood-sorrel

(Gr. *oxalis*, sorrel, from *oxys*, sour, referring to the sap)

1. Native; flowers yellow, 5-10 mm. wide *O. repens*
2. Cultivated; flowers varicolored, 10-25 mm. wide
 - a. Stems leafy; leaflets deeply notched; flowers yellow *O. stricta*
 - b. Stems leafless; leaflets not deeply notched; flowers rose
 - (1) Leaves fleshy, 5-6 cm. wide; stem from bulbs *O. flava*
 - (2) Leaves thin, hairy, 3-4 cm. wide; stem from thickened rootstocks *O. rubra*

Balsaminaceae—Touch-me-not Family

Herbs with simple alternate leaves; sepals 4, one of them spurred, petals apparently 2, numerous stamens 10, ovary 5-celled, stigma 1, fruit a capsule which coils elastically, ejecting the seeds; flower syncarpous, apopetalous, hypogynous, irregular.

Impatiens—Touch-me-not, Balsam, Jewel-weed

(Lat. *impatiens*, impatient, hence touch-me-not, from the elastic seeds)

1. Native; flowers pale-yellow to orange
 - a. Flowers pale yellow, with scattered reddish dots *I. parviflora*
 - b. Flowers orange, densely dotted with red-brown *I. nuda*
2. Cultivated; flowers red to white, varicolored
 - a. Flower flat, red; spur long, narrow *I. calceola*
 - b. Flower cup-like, varicolored, often double; spur short, conical *I. balsamina* (garden Balsam, jewel-weed)

Tropaeolaceae—Tropaeolum Family

Fleshy herbs, climbing with their long petioles, or more or less creeping, the leaves roundly shield-shaped, alternate; sepals 5, united at the base into a long spur, petals usually 5, numerous stamens 10, ovary 3-celled, stigma 1, fruit of 3 fleshy achene-like bodies, flower incompletely syncarpous, apopetalous, hypogynous, irregular.

Tropaeolum—Tropaeolum, Nasturtium, Indian Cress

(Gr. *tropaion*, Lat. *tropaeum*, trophy, perhaps from the shield-like leaf)

1. Petals large, spreading
 - a. Leaves entire or wavy
 - (1) Leaf veins ending in points, petals narrow, pointed *T. minus*
 - (2) Leaf veins not pointed; petals broad, not pointed *T. beldii*
 - b. Leaves deeply lobed; flowers bright yellow; spur green, hooked *T. peruvianum*
2. Petals small, projecting from the vermillion calyx *T. frutescens*

Linácea—Flax Family

Herbs with simple alternate entire leaves; sepals 5, petals 5, stamens 5, ovary 5-celled, styles 5, fruit a 10-celled capsule; flower syncarpous, apopetalous, hypogynous, regular.

Línium—Flax

(Gr. *linon*, Lat. *linum*, flax)

1. Flowers blue
 - a. Annual; sepals pointed
 - b. Perennial; sepals blunt
2. Flowers red

L. usitatissimum: common flax
L. perenne: blue flax
L. sanguineum: red flax

Rutácea—Rue Family

Herbs, shrubs or trees with compound leaves, sometimes reduced to the terminal leaflet, and appearing simple; sepals 4-5, or lacking, petals 4-8, stamens 4-60, ovary 2-5-celled, styles 1-5, or 2-5 separate pistils; fruit various, capsule, samara, drupe or berry; flower apocarpous or syncarpous, apopetalous, perfect, polygamous or dioecious, hypogynous, regular.

1. Flowers greenish-yellow; leaves compound
2. Flowers white, fragrant; leaves of one leaflet

Ruta
Citrus

Rúta—Rue

(Lat. *ruta*, rue)

Bushy herb, woody at base; leaflets oblong to obovate, dotted

R. graveolens

Cítrus—Orange, Lemon, Citron

(Gr. *kitron*, the citron tree)

1. Leaves 1-foliate, evergreen
2. Leaves 3-foliate, deciduous

C. aurantium
C. trifoliata

Euphorbiácea—Spurge Family

Herbs or shrubs usually with milky juice and alternate simple leaves; sepals 3-5, somewhat united, or lacking, petals 0, or rarely 5-6, stamens 1-30, ovary 3-lobed or 3-celled, stigmas 3-6, fruit a 3-celled capsule; flower syncarpous, apetalous, monoecious or dioecious, hypogynous. In the genus *Euphorbia*, a cup-like involucre, resembling a calyx, contains 1 pistillate and several many staminate flowers of 1 stamen each, and frequently bears 1-4 brightly colored glands at the edge, simulating a corolla.

1. Leaves very large, 3-6 dm. wide, 7-11 cleft
2. Leaves not cleft
 - a. Calyx present
 - (1) Staminate flowers with 8-16 stamens and no petals
 - (2) Staminate flowers with 15-30 stamens and 5-6 petals
 - b. Flowers tiny, many in a calyx-like involucre

Ricinus
Acalypha
Codiaeum
Euphorbia

Ricinus—Castor-bean, Castor-oil Plant

(Lat. name of the castor bean)

Plant 1-4 m. tall; capsules spiny

R. communis

Acalýpha—Acalypha

(Gr. *akalyphe*, nettle)

1. Flowers in red spikes, 1-3 dm. long
2. Flower clusters small and inconspicuous
 - a. Greenhouse shrub with colored leaves
 - b. Low native weed with green leaves

A. hispida
A. tricolor
A. virginica

Euphórbia—Spurge

(Gr. *euphorbion*, name of a resinous plant)

1. Shrubs, often with spines
 - a. Smooth shrubs with the upper leaves flower-like; involucre with 1 yellow gland
 - b. Spiny shrubs with green leaves; involucre with 2 red petal-like glands
2. Smooth herbs

E. pulcherrima: poinsettia
E. splendens

a. Stems 1-2 m. tall; involucre with 5 white petal-like glands

(1) Upper leaves white or white margined, runcate-ovate

P. maritima (L.) Lamour.

(2) Leaves scattered, not white and not in a rosette

P. maritima

b. Stems prostrate, or 1-3 dm. high

P. maritima

(1) Stems prostrate or spreading

(a) Leaves hairy

P. maritima

(b) Leaves smooth

x. Seeds wrinkled and pitted

P. maritima

y. Seeds strongly wrinkled, not pitted

P. maritima

(2) Stems erect, 2-3 dm. high; leaves serrate

P. maritima

Codiæum—Codiaeum, Croton

(Latinized form of the Malay name)

Shrub; leaves ovate-lanceolate, varicolored

C. pictum

Primulales Primrose Order

Plumbaginaceae—Leadwort Family

Herbs or woody plants with entire leaves; sepals 5, united, petals 5, united in two vertical columns, 5, opposite the petals, ovary 1-celled, stigmas 5, fruit a utricle; flower syncarpous, sympetalous or sometimes apetalous, hypogynous, regular.

1. Stems leafy; corolla with a long tube

Plumbago

2. Stems leafless; corolla of nearly or quite separate petals

Arméria

Plumbago—Leadwort

(Lat. *plumbum*, lead, application obscure)

1. Shrubby, climbing; leaves not ciliate; flowers light blue

P. capensis

2. Low bushy herb; leaves ciliate, flowers deep blue

P. capensis

Arméria—Thrift

(Lat. form of the Celtic name)

Stems tufted, with narrow entire leaves; flowers rose

A. maritima

Primulaceae—Primrose Family

Herbs with simple leaves; sepals 5, united, petals 5, united, stamens 5, separate (or united), ovary 1-celled, stigma 1, carpels 5, fruit a capsule or a pyxis; flower syncarpous, sympetalous, hypogynous, usually regular.

1. Flowering stems leafless

a. Flowers in an umbel, erect

Primula

b. Flowers single, inverted

Cyclamen

2. Flowering stems leafy

a. Flowers yellow

Primula

b. Flowers red, blue or white

Anagallis

Primula—Primrose, Cowslip

(Lat. *primus*, spring, referring to the time of flowering)

1. Flowers pink to purple or white

a. Leaves round-ovate, lobed; calyx inflated

P. aurantiaca

b. Leaves spatulate, not lobed; calyx not inflated; narrow

P. aurantiaca

2. Flowers yellow to red

a. Flowers 1-2 cm. wide, drooping; corolla limb cup-like

P. officinalis (L.) Lamour.

b. Flowers 2-4 cm. wide; corolla limb flat

(1) Leaves thick, 5-8 cm. long

P. officinalis

(2) Leaves thinner, 1-2 dm. long

(a) Flowers stemless or nearly so, arising the leaves

P. officinalis

(b) Flowers on leafless scapes

P. officinalis

Cýclamen—Cyclamen

(Gr. *kyklaminos*, cyclamen, from *kyklos*, referring to the coiled flower stalk of some species)
 Flowering stems leafless, from a large corm; flowers varicolored *C. persicum*

Lysimáchia—Loosestrife

(Gr. *lysimachia*, loose-strife, from its reputed medical properties)
 Stems creeping; the leaves round, opposite, with single yellow flowers in the axils *L. nummularia*: money-wort

Anagállis—Pimpernel

(Gr. name of the pimpernel, from *agallomai*, to delight)

1. Low and spreading; leaves ovate; flowers 4-6 mm. wide *A. arvensis*
2. Erect; leaves lance-linear; flowers 10-15 mm. wide *A. linifolia*

Plantagináceae—Plantain Family

Low herbs with parallel-veined leaves at the base of the flowering stems; sepals 4, united, petals 4, united, stamens 4, rarely 2, exerted in flowering, ovary 2-celled, stigma 1, hairy and thread-like, fruit a pyxis; flower syncarpous, sympetalous, hypogynous, regular.

Plantágo—Plantain

(Lat. *planta*, sole, perhaps from the broad flat leaf)

1. Leaves ovate
 - a. Pod ovoid, splitting circularly near the middle *P. májor*
 - b. Pod oblong, splitting near the base *P. Rugéliei*
2. Leaves lanceolate to linear
 - a. Leaves lanceolate to oblong, 8-40 mm. wide
 - (1) Leaves lanceolate, 3-5-ribbed, 8-25 mm. wide *P. lanceolata*
 - (2) Leaves oblong to spatulate, 5-9-ribbed, 15-40 mm. wide *P. eriopoda*
 - b. Leaves linear, 3-8 mm. wide
 - (1) Leaves silky-hairy; bracts little longer than flowers *P. Púrshii*
 - (2) Leaves smooth or hairy; bracts several times longer than flowers *P. aristata*

Polemoniales Phlox Order

Polemoniáceae—Phlox Family

Herbs with opposite or alternate, simple or compound leaves; sepals 5, united, petals 5, united, stamens 5, ovary 3-celled, stigmas 3, fruit a capsule; flower syncarpous, sympetalous, hypogynous, regular.

1. Climber; leaves pinnate; corolla bell-shaped *Cobaea*
2. Erect herbs; leaves simple; corolla salver-form *Phlox*

Cobáea—Cobaea

(Named for a Mexican priest, Cobo)

Leaves ovate; flower greenish or purplish, 5-6 cm. long *C. scandens*

Phlóx—Phlox, Sweet William

(Gr. *phlox*, flame, from the brilliant colors)

1. Plants hairy
 - a. Perennial; blooming in May, and sparsely again in autumn *P. divaricata*
 - b. Annual; blooming in summer and autumn *P. Drummondii*
2. Plants smooth, perennial *P. paniculata*

Convolvuláceae—Morning Glory Family

Twining or trailing herbs, with simple alternate leaves, or leafless; sepals 4-5, usually united, petals 4-5, united, stamens 4-5, ovary 2-4-celled, stigmas 2-3, fruit a capsule; flower syncarpous, sympetalous, hypogynous, regular.

1. Stems leafy, green; flowers large
 - a. Stigma capitate, somewhat lobed
 - (1) Leaves pinnately parted; corolla salver-form *Quamoclit*

- (2) Leaves not pinnately parted; corolla funnel-form
 b. Stigmas 2, linear
 2. Stems leafless, orange or yellow; flowers tiny

Ipomoea
concolorata
Calceola

Quámochit—Cypress Vine
 (The Mexican name)

Leaf segments linear; flowers single, red

Q. cylindrica

Ipomoea—Morning Glory, Sweet Potato

1. Flowers opening in the morning
 a. Corolla funnel-form, 3-7 cm. wide, never scarlet yellow
 (1) Leaves cordate-ovate, entire; stem hairy
 (2) Leaves angled to deeply lobed
 (a) Plant hairy
 (b) Plant smooth
 b. Corolla salver-form, 1-2 cm. wide, scarlet yellow
 2. Flowers opening at night; corolla white, 10-15 cm. wide

I. purpurea
I. hederacea
I. hederacea var. purpurea
I. nocturna
I. lewisii

Convólyulus—Bindweed

(Lat. *convolvere*, to twine, from the habit)

1. Corolla white to rose; weeds
 a. Calyx enclosed in 2 leafy bracts; flowers 4-5 cm. long
 b. Calyx without leafy bracts; flowers 2 cm. long
 2. Corolla blue, with white throat and yellow tube; bushy herb, cultivated

C. alpinus leafy bracts
 weed
C. corollae leafy bracts
 weed
C. tricolor

Cuscuta—Dodder

(Of uncertain origin and meaning)

1. Sepals separate
 a. Styles as long as the ovary
 b. Styles 2-3 times as long as the ovary
 2. Sepals united
 a. Flowers sessile
 b. Flowers stalked

C. complanata
C. glauca
C. polygama
C. grandis

Solanácea—Potato Family

Herbs or shrubs, with alternate, usually strong-scented leaves; sepals 5, united, petals 5, united, ovary usually 2-celled, sometimes 3-5-celled, stigma 1, sometimes 2 lobed, fruit a berry or capsule; flower syncarpous, sympetalous, hypogynous, regular or sometimes irregular

1. Shrub, often spiny, with green-purple flowers and red berries
 2. Herbs

S. elaeagnifolium

- a. Corolla wheel-shaped or cup-shaped, more or less flat
 (1) Calyx bladdery, inflated in fruit
 (2) Calyx not bladdery
 (a) Filaments much longer than the anthers
 (b) Filaments not longer, usually shorter than the anthers
 x. Anthers united at the tip; flower yellow
 y. Anthers not united; flower not yellow, except in one spiny species

Physalis
Lycopersicon
Lycopersicon
Solanum

- b. Corolla tubular to funnel-form or salverform
 (1) Fruit spiny; flowers long tubular, solitary
 (2) Fruit not spiny

Datura

- (a) Fruit a purple berry; corolla long bell-shaped

Atropa

- (b) Fruit a capsule

- x. Calyx enclosing the pod

- (x) Calyx with a spreading net-like border in fruit

Hyoscyamus

- (y) Calyx bell-shaped, without a spreading border

Nicotiana

- y. Calyx not enclosing the pod

Petunia

Lycium—Matrimony Vine
(Named from the country Lycia)

Leaves spatulate, entire; branches trailing

L. vulgäre

Physalis—Ground Cherry
(Gr. *physallis*, bubble, from the inflated calyx)

1. Fruiting calyx red

P. alkekengi: straw-
berry, tomato

2. Fruiting calyx not red

P. heterophylla

a. Plant glandular, hairy

b. Plant smooth or sparsely hairy

(1) Corolla dull yellow with brown center; berry yellowish

P. lanceolata

(2) Corolla bright yellow with purple center; berry purple

P. ixocarpa

Capsicum—Red Pepper, Cayenne Pepper, Green Pepper
(Gr. *kapsis*, gulping down,, perhaps from its pungency)

1. Annual or biennial; fruit oblong-linear to round

C. annuum

2. Perennial; fruit oblong-pointed as a rule

C. frutescens

Lycopersicum—Tomato
(Gr. *lykos*, wolf, *persikon*, peach)

Leaves pinnate, hairy, strong-scented; flowers yellow; fruit red or yellow

L. esculentum

Solanum—Potato, Egg-plant, Nightshade
(Lat. *sola*-, solace, perhaps from the use as food or medicine)

1. Plant prickly

a. Prickly calyx enclosing the dry fruit

S. rostratum: buffalo bur

b. Calyx less prickly, or smooth, not enclosing the berry

(1) Fruit globose, orange-yellow, 1-2 cm. wide; native

S. carolinense: horse
nettle

(2) Fruit various in form and color, large, ½-2 dm. long; cultivated

S. melongena: egg-plant

2. Plant not prickly

a. Shrubby house-plant with white flowers and red berries

S. pseudo-capsicum:
Jerusalem cherry

b. Plant not shrubby

(1) Leaves lobed or compound

(a) More or less climbing, many of the leaves 3-lobed; flowers
purple; berry red

S. dulcamara: bittersweet

(b) Erect or spreading; berry green

x. Leaves pinnate; cultivated for its tubers

S. tuberosum: potato

y. Leaves pinnatifid; native

S. triflorum

(2) Leaves not lobed, nearly entire, fruit black, edible; wild, and cul-
tivated as the "wonderberry"

S. nigrum: nightshade

Datura—Thorn-apple, Stramonium, Jimson Weed
(Name from the Arabic)

1. Flower white

a. Leaves lobed

D. stramonium

b. Leaves entire or merely wavy

(1) Plant smooth; corolla 5-toothed

D. cornucopia

(2) Plant viscid, hairy; corolla 10-toothed

D. meteloides

2. Flower violet or lilac

D. tatula

Atropa—Belladonna
(Named for Atropos, one of the Fates)

Leaves ovate, entire; corolla and berry purple

A. belladonna

Hyoscyamus—Henbane
(Gr. *hyos*, hog, *kyamos*, bean)

Leaves clasping, toothed, clammy; flowers yellowish

H. niger

Nicotiana—Nicotiana, Tobacco

(Named for Nicot, an early owner of tobacco)

1. Flowers white, at least within, opening at nightfall *N. glauca*
2. Flowers usually some shade of red, day-blooming
 - a. Leaves sessile, decurrent; flowers red or purple *N. rustiana*
 - b. Leaves stalked; flowers yellowish or greenish *N. umbellata*

Petunia—Petunia

(Native name of the tobacco)

- Leaves ovate, hairy, nearly sessile; flowers varicose, often double *P. violacea*

Boraginaceae—Borage Family

Herbs with simple alternate leaves, often rough-hairy; sepals 5, unequal, petals 5, unequal, stamens 5, ovary 4-celled or deeply 4-lobed, separating at maturity into 4 nearly equal 1 or 2-seeded sycarpous, sympetalous, hypogynous, regular, or irregular in one genus.

1. Ovary divided into 4 parts
 - a. Corolla regular
 - (1) Corolla wheel-shaped, tube lacking *Borago*
 - (2) Corolla more or less tubular, with scale-like appendages in the throat
 - (a) Flowers blue to purple
 - x. Nutlets bur-like, with hooked prickles *Cynoglossum*
 - y. Nutlets smooth *Anchusa*
 - (b) Flowers yellowish white *Synthyris*
 - b. Corolla irregular *Helian*
2. Ovary entire, but the ripe fruit separating into 2 or 4 nutlets *Heliotropium*

Borago—Borage

(Supposed to be from *corago*, because of reputed virtue as a cathartic)

- Leaves oval to lance-oblong, bristly; flowers blue to purple *B. officinalis*

Cynoglossum—Houndstongue

(Gr. *kynos*, dog, *glossa*, tongue)

- Leaves spatulate to lance-oblong, downy, flowers red purple *C. officinale*

Anchusa—Alkanet

(Gr. *enchusa*, alkanet, because the root yields a red dye)

- Leaves lance-ovate, rough; flowers large *A. officinalis*

Symphytum—Comfrey

(Gr. *symphyton*, comfrey, from *symphyo*, to unite, named from its healing properties)

- Leaves lance-oblong, soft-hairy, decurrent *S. officinale*

Heliotropium—Heliotrope

(Gr. *heliotropion*, a plant which turns toward the sun)

1. Corolla tube hardly longer than the calyx *H. boreale*
2. Corolla tube twice longer than the calyx *H. vermiculatum*

Gentianales Gentian Order

Gentianaceae—Gentian Family

Herbs with opposite simple entire sessile leaves; sepals 4-5, unequal, petals 4-5, unequal, stamens 4-5, alternate with the corolla lobes, ovary 1-celled, with 2 perisperm albumen; stigma 2-3-lobed; capsule; flower syncarpous, sympetalous, hypogynous, irregular

1. Corolla tubular, blue; flowers solitary or clustered *Gentiana*
2. Corolla wheel-shaped, green; flowers in a large panicle *Excoecaria*

Gentiana—Gentian

(Named for King Gentian of Burgundy)

1. Corolla lobes fringed; flower open *G. verna*, *Gentiana*
2. Corolla lobes not fringed; flower closed *G. andersoniana*, *G. linearis*

Fráscera—Fraseria
(Named for the botanist Fraser)

Corolla 4-parted, with 4 fringed nectaries

F. speciosa

Apocynáceae—Dogbane Family

Herbs or shrubs, usually with milky juice, and with opposite simple leaves; sepals 5, united, petals 5, united, stamens 5, ovaries 2, the styles or at least the stigmas united, fruit a follicle; flower apocarpous, sympetalous, hypogynous, regular.

1. Shrubs; leaves somewhat whorled, leathery
2. Herbs, or woody at base; leaves opposite

Nerium
Vinca

Nérium—Oleander, Rose Bay
(Gr. *nerion*, oleander)

Flowers rose to white, in terminal clusters

N. oleánder

Vínca—Periwinkle

(Lat. *vincio*, to bind, from the cord-like stems)

Leaves oblong, veiny, shining; flowers salverform, rose to white

V. rósea

Scrophulariales Snapdragon Order

Scrophulariáceae—Snapdragon Family

Herbs with mostly simple leaves; sepals united, the calyx often 2-lipped, petals usually 5, and united into an irregular or 2-lipped corolla, rarely 4 and regular, stamens 4, rarely 2 or 5, ovary 2-celled, stigma 1, entire or 2-lobed, fruit a capsule; flower syncarpous, sympetalous, hypogynous, typically irregular.

1. Stamens, or the anther-bearing ones, only 2

a. Corolla 2-lipped

- (1) Leaves opposite; both corolla lips sac-like
- (2) Leaves alternate; one lip slightly sac-like

Calceolaria
Schizanthus
Veronica

b. Corolla not 2-lipped, often nearly regular

2. Anther-bearing stamens 4

a. Fifth stamen present as a sterile filament

(1) Corolla strongly 2-lipped

- (a) Corolla wide open; sterile filament conspicuous
- (b) Corolla nearly closed; sterile filament shorter than others
- (2) Corolla not 2-lipped, somewhat irregular

Pentstemon
Chelone
Salpiglossis

b. Fifth stamen entirely lacking

(1) Base of the corolla with a spur or sack

- (a) Corolla spurred
- (b) Corolla with a sack at base

Linaria
Antirrhinum

(2) Corolla without spur or sack

- (a) Corolla salverform, not 2-lipped
- (b) Corolla more or less tubular and 2-lipped

Browallia

x. Climbing by coiling leaf stalks

Maurandia

y. Not climbing

(x) Leaves alternate; flowers terminal

Digitalis

(y) Leaves opposite; flowers axillary

m. Calyx 2-lipped; corolla 4-lobed

Torenia

n. Calyx 5-toothed; corolla 2-lipped

Mimulus

3. Stamens with anthers 5, corolla wheel-shaped

Verbascum

Calceolária—Calceolaria

(Lat. *calceolus*, slipper, from the form of the flower)

1. Leaves simple; flower yellow, with red-orange dots
2. Leaves pinnate; flower yellow

C. pendula
C. pinnáta

Schizánthus—Butterfly Flower

(Gr. *schizos*, split, *anthos*, flower, from the lobed petals)

Petals much lobed, the lower sack-like, varicolored

S. pinnáta

Veronica—Speedwell

(Of doubtful origin and meaning)

1. Leaves in whorls; flowers white to blue, in terminal spikes *V. virginica*
2. Leaves opposite or alternate; flowers blue, axillary *V. Bushiana*

Pentstemon—Pentstemon, Beard Tongue

(Gr. **pente**, five, **stemon**, stamen, from the sterile stamens)

1. Flowers pink to red, narrow; leaves linear to lanceolate *P. barbatus*
2. Flowers white; leaves ovate to oblong *P. digitalis*

Chelone—Turtle-head, Balmey

(Gr. **chelone**, turtle, from the form of the corolla)

- Leaves lanceolate to oblong; flowers white to pale purple *C. glabra*

Salpiglossis—Garden Trumpet

(Gr. **salpingos**, trumpet, **glossa**, tongue, incorrectly formed)

- Leaves lanceolate, entire to pinnatifid; flowers varicolored *S. formosa*

Linaria—Butter-and-Eggs

(Lat. **linum**, flax, from the resemblance)

1. Plant creeping; leaves round; flowers blue *L. cymbalaria* *Kent*
worth it y
2. Plant erect; leaves linear or lance-linear
 - a. Flowers blue *L. alpina*
 - b. Flowers yellow *L. sulcata* *hairy* *and*
eggs

Antirrhinum—Snapdragon

(Gr. **anti-**, like, **rhinos**, nose, from the form of the flower)

1. Plant erect; leaves linear to oblong
 - a. Flowers 3-5 cm. long; leaves lanceolate to oblong *A. majus*
 - b. Flowers 1-2 cm. long; leaves linear *A. polyneum*
2. Plant climbing by coiling petioles; leaves halberd-like *A. majus*

Browallia—Browallia

(Named for a Swedish botanist, Browall)

- Leaves ovate, cuneate or rounded; flowers varicolored *B. villosa*

Maurandia—Maurandia

(Named for the botanist Maurand)

- Stem and leaves smooth; corolla purple *M. bicolor*

Digitalis—Foxglove

(Lat. **digitalis**, finger-like, from the form of the corolla)

1. Flowers yellowish *D. purpurea*
2. Flowers purple *D. purpurea*

Torénia—Torenia

(Named for the Swedish botanist, Toren)

1. Corolla yellow *T. flava*
2. Corolla blue to white
 - a. Corolla 4-lobed *T. asiatica*
 - b. Corolla 2-lipped *T. fourcroyana*

Mimulus—Monkey Flower

(Gr. **mimos**, Lat. **mimus**, comic actor from the grinning corolla)

1. Flowers yellow; cultivated
 - a. Creeping, hairy, musk-scented *M. lewisii* *musk*
plant
 - b. Erect, smooth *M. lewisii*
2. Flowers red-purple; native *M. rhytidophyllus*

Verbascum—Mullein

(Lat. *verbascum*, mullein)

1. Leaves woolly, white to gray
 - a. Leaves densely woolly, decurrent on the stem *V. thapsus*
 - b. Leaves thinly woolly, not decurrent *V. lychnitis*
2. Leaves smooth, green *V. blattaria*

Acanthaceae—Acanthus Family

Herbs with opposite simple leaves; sepals 5, united, petals 5, united, stamens 4 or 2, ovary 2-celled, stigma 1 or 2, fruit a capsule; flower syncarpous, sympetalous, hypogynous, usually irregular.

1. Leaves pinnatifid; corolla of one 3-lobed lip *Acanthus*
2. Leaves arrow-shaped; corolla 5-lobed, nearly regular *Thunbergia*

Acanthus—Acanthus

(Gr. *akantha*, prickle, from the prickly leaves)

1. Leaves spiny, deeply cut *A. spinosus*
2. Leaves nearly or quite smooth, lobed *A. mollis*

Thunbergia—Thunbergia

More or less climbing; flowers varicolored *T. alata*

Gesneriaceae—Gesnera Family

Herbs with simple leaves; sepals 5, united, petals 5, united, ovary 1-celled with 2 parietal placentae, stigma entire or 2-lobed, fruit a capsule; flower syncarpous, sympetalous, hypogynous, regular or irregular.

1. Stems leafless
 - a. Stamens 4 *Sinningia*
 - b. Stamens, at least the anther-bearing, 2 *Streptocarpus*
2. Stems leafy *Achimenes*

Sinningia—Gloxinia

(Named for the botanist, Sinning)

Leaves spatulate to rounded; flowers varicolored *S. speciosa*

Streptocarpus—Streptocarpus

(Gr. *streptos*, twisted, *karpós*, fruit, from the twisted pods)

1. Leaf single, basal; flowers several on each scape *S. polyantha*
2. Leaves several to many; flowers usually single *S. Rétzii*

Achimenes—Achimenes

(Gr. *acheimenes*, not disturbed by winter, i. e., blooming late)

1. Flowers violet blue *A. longiflora*
2. Flowers reddish *A. grandiflora*

Bignoniaceae—Catalpa Family

Herbs, or woody plants with simple or compound leaves, sepals united, petals 5, united mostly into a 2-lipped corolla, stamens 4 or 2, ovary 1-4-celled, stigma 2-lobed; fruit a capsule or silique; flower syncarpous, sympetalous, hypogynous, irregular.

1. Leaves pinnate; flowers on a scape, rose *Incarvillea*
2. Leaves simple; flowers on the leafy stem, whitish *Martynia*

Incarvillea—Incarvillea

(Named for Incarville, a French missionary)

1. Leaflets entire or toothed
 - a. Leaflets toothed or nearly so *I. olgae*
 - b. Leaflets toothed throughout *I. Delavayi*
2. Leaflets cleft *I. variabilis*

Martynia—Unicorn Plant

(Named for the English botanist, Martyn)

Leaves heart-shaped, entire, hairy; flowers whitish to lilac or yellowish *M. proboscidea*

Lamiales Mint Order

Verbenaceae—Verbena Family

Herbs or shrubs with simple opposite or whorled leaves; sepals 2, united, usually 5, united into an irregular corolla, stamens 4, ovary 1-4-celled, stigma single, often 2-lobed; fruit indehiscent, or dry and then usually separating into 4 nutlets; flowers axillary, cymose, verticillate, or racemose, irregular.

1. Shrubs; corolla 4-lobed

Lantana

2. Herbs; corolla 5-lobed or 2-lipped

a. Calyx 2-lipped, with spiny teeth; corolla 2-lipped, hairy

Physalis

b. Calyx not 2-lipped and spiny; corolla irregularly 5-lobed

Physalis

Lantana—Lantana

(Of uncertain origin and meaning)

Flowers yellow, then orange and finally reddish; leaves ovate

L. camara

Physalis—Tobacco

(Of uncertain origin and meaning)

Leaves ovate; flowers small, in a loose spike; fruits spiny

P. peruviana

Verbena—Verbena, Vervain

(Lat. *verbena*, a sacred branch)

1. Native weeds

a. Plant spreading; bracts longer than the flowers

V. stricta

b. Plant tall, erect; bracts shorter than the flowers

(1) Flowers white; spike very narrow

V. stricta

(2) Flowers blue; spike broader

(a) Leaves lanceolate, somewhat hairy

V. stricta

(b) Leaves ovate, very hairy

V. stricta

2. Garden plants, extensively hybridized and known as

V. stricta

Lamiaceae—Mint Family

Herbs, mostly aromatic, usually with opposite leaves and 4-angled stems; bracts 5, united, usually 5, united, usually irregular, stamens 4 or 2, ovary 4-lobed, i.e., the two cells divided

1. Corolla regular or nearly so

a. Calyx 5-toothed; corolla 4-cleft

Mentha

b. Calyx 2-lipped in fruit; corolla 5-cleft

Peppermint

2. Corolla irregular, usually 2-lipped

a. Stamens 2

(1) Herbs

(a) Flowers in racemes or spikes; calyx 2-lipped

Salvia

(b) Flowers in heads; calyx 5-toothed

Monarda

(2) Shrubs

Rhamnus

b. Stamens 4

(1) Calyx 2-lipped

(a) Calyx cup-shaped, lips entire

Scutellaria

(b) Calyx lips toothed

x. Flower bracts large, round, purplish

Penstemon

y. Flower bracts neither round nor purple

(x) Corolla apparently with one long lip

Penstemon

(y) Corolla clearly 2-lipped

m. Corolla yellowish to white

Penstemon

n. Corolla purple or blue

Penstemon

(2) Calyx more or less equally 4-5-toothed, rarely 10-toothed

(a) Calyx 10-toothed; leaves white woolly

Thymus

(b) Calyx 4-5-toothed

x. Upper tooth much larger than the others

(x) Corolla with upper lip 4-lobed, lower 1-lobed

- m. Leaves green; filaments separate
- n. Leaves colored; filaments united
- (y) Corolla with upper lip 2-lobed, lower 3-lobed
 - m. Native herb; leaves lanceolate to ovate
 - n. Hoary undershrub, cultivated; leaves lance-linear
- y. Teeth equal in size or nearly so
 - (x) Calyx swollen in fruit
 - (y) Calyx not swollen
 - m. Calyx teeth rigid, spiny
 - n. Calyx teeth not spiny
 - (m) Flowers in heads
 - (n) Flowers not in heads
 - r. Stamens projecting, at least 2 of them
 - (r) Leaves linear to oblong; bracts green
 - (s) Leaves ovate; bracts purple
 - s. Stamens not projecting
 - (r) Lower or outer stamens shorter than the inner
 - h. Anther halves parallel
 - i. Anther halves spreading
 - (s) Lower or outer stamens longer than the inner
 - h. Upper lip of the corolla flat, erect
 - i. Upper lip hooded or concave
 - (h) Calyx 5-nerved
 - (i) Calyx 10-nerved

Ocimum
Coleus
Dracocephalum
Lavandula
Physostegia
Leonurus
Koellia
Hyssopus
Origanum
Lopanthus
Nepeta
Satureia
Lamium
Stachys

M. spicata: spearmint

M. piperita: peppermint
M. citrata: bergamot
 mint
M. canadensis: wild mint

Méntha—Mint

(Gr. *mintha*, Lat. *mentha*, mint)

- 1. Leaves sessile
- 2. Leaves petioled
 - a. Flowers mostly in terminal spikes
 - (1) Leaves lanceolate
 - (2) Leaves ovate
 - b. Flowers in axillary whorls

Perilla—Perilla

(From the native name in India)

Leaves ovate, bronze-purple, fragrant; flowers rose or whitish

P. crispata

Sálvia—Sage

(Lat. from *salvus*, well, referring to its medical use)

- 1. Flowers blue
 - a. Tall; leaves green; flowers large, 2-3 cm.
 - b. Low; leaves white-woolly; flowers 1-2 cm.
- 2. Flowers red
 - a. Floral leaves and calyx green
 - b. Floral leaves and calyx red

S. azurea: blue sage
S. officinalis: garden sage

S. fulgens
S. splendens: red sage

Monárda—Balm, Horse-mint

(Named for Monardez, a Spanish writer on medical plants)

- 1. Corolla red
- 2. Corolla rose-purple to white

M. didyma: Oswego tea
M. fistulosa: wild bergamot

Rosmarínus—Rosemary

(Lat. *ros*, dew, *marinus*, of the sea)

Shrub with evergreen linear leaves, hoary beneath; flowers blue

R. officinalis

LAMIACEAE

Scutellaria—Skullcap

(Lat. *scutella*, flat dish, referring to the calyx)

1. Leaves sessile; flowers 2.3 cm. long, solitary *S. latifolia*
2. Leaves petioled; flowers 6.8 mm. long, in racemes *S. laricina*

Prunella—Heal-all, Self-heal

(of uncertain origin)

Leaves oblong to ovate; bracts round; flowers blue-purple *P. vulgaris*

Teucrium—Germander

(Gr. *teucrion*, germander, perhaps named for Teucer, first king of Troy)

Leaves lance-ovate, serrate; flowers purplish *T. canadense*

Melissa—Bee-balm

(Gr. *melissa*, bee, referring to its attractive fragrance)

Leaves ovate, crenate; flowers yellowish or white *M. officinalis*

Thymus—Thyme

(Gr. *thymon*, thyme, from its fragrance)

1. Creeping, leaves petioled; flowers axillary *T. serpyllum*
2. Erect; leaves sessile; flowers in terminal spikes *T. pulchellus*

Marrubium—Hearthorn

(Lat. name from the Hebrew word for bitter)

Leaves ovate-rounded, crenate; flowers small, white *M. sativum*

Dracocéphalum—Dragon-head

(Gr. *drakon*, dragon, *kephale*, head)

Leaves lanceolate to oblong, toothed; flowers light blue *D. racematum*

Ocimum—Sweet Basil

(Gr. *ocimon*, an aromatic plant, basil)

Leaves ovate, toothed; flowers bluish-white *O. basilicum*

Coleus—Foliage-plant

(Gr. *koleos*, sheath, referring to the sheath-like)

Leaves ovate, toothed, colored; flowers blue *C. blumei*

Lavandula—Lavender

(Lat. *lavandus*, for washing, referring to its use in lavender water)

Leaves lance-linear; flowers blue *L. vera*

Physostégia—Dragon-head

(Gr. *physa*, bladder, *stéga*, roof, referring to the fringed calyx)

1. Corolla pale purple or rose, 2.3 cm. long *P. virginiana*
2. Corolla purple, 1-1½ cm. long *P. perfoliata*

Leonurus—Motherwort

(Gr. *leon*, lion, *oura*, tail, of no evident application)

Leaves palmately cleft; calyx spiny; corolla pink to white *L. raietorum*

Koëlia—Mountain Mint

(Named for a German botanist, Koëbe of the 19th century)

Leaves lance-linear, sessile; flowers white in round heads *K. virginiana*

Hyssopus—Hyssop

(Gr. *hyssopos*, an aromatic plant)

Leaves lance-linear, entire; flowers blue *H. officinalis*

Origanum—Marjoram

(Gr. name of a plant resembling rue (*Ruta*))

1. Leaves broadly ovate; bracts colored; calyx of 5 equal teeth *O. onites*
2. Leaves oblong-ovate; bracts green; calyx 2 lipped *O. marjorana*

ROSACEAE

Lopánthus—Giant Hyssop
(Gr. *lophos*, crest, *anthos*, flower)

- | | |
|--|-----------------------------|
| 1. Corolla yellowish; calyx nearly equalling corolla | <i>L. nepetoides</i> |
| 2. Corolla blue or purple | |
| a. Leaves white beneath, anise scented | <i>L. anisátus</i> |
| b. Leaves green beneath, not anise-scented | <i>L. scrophularifolius</i> |

Népeta—Catnip, Gill
(Lat. name of the catnip)

- | | |
|--|--------------------|
| 1. Erect; leaves oblong; flowers whitish | <i>N. catária</i> |
| 2. Creeping; leaves round; flowers blue | <i>N. glechóma</i> |

Saturéia—Savory
(Lat. name of the savory, Gr. *satyrion*)

- | | |
|---|---------------------|
| Leaves oblong-linear; flowers small, purplish | <i>S. horténsis</i> |
|---|---------------------|

Lámium—Dead-nettle, Henbit
(Gr. *lamia*, throat, referring to the gaping corolla)

- | | |
|--|-----------------------|
| 1. Corolla red or purplish; upper leaves sessile | <i>L. amplexicúle</i> |
| 2. Corolla white; leaves petioled | <i>L. álbum</i> |

Stáchys—Hedge Nettle
(Gr. *stachys*, spike, referring to the flower cluster)

- | | |
|-------------------------------------|---------------------|
| 1. Leaves sessile or short-petioled | <i>S. palústris</i> |
| 2. Leaves distinctly petioled | <i>S. áspera</i> |

Rosales Rose Order

Rosáceae—Rose Family

Herbs or woody plants, with alternate leaves; sepals usually 5, sometimes 4 or apparently twice the number, petals usually 5, stamens 4-many, pistils separate, 1-many, or 2-5, united, fruit various; flower apocarpous or syncarpous, apopetalous, or apetalous, perigynous, regular.

- | | |
|---|-------------------|
| 1. Flowers large, 3-many cm. wide; shrubs with pinnate leaves | <i>Rosa</i> |
| 2. Flowers small to medium, 1-3 cm. wide | |
| a. Petals present | |
| (1) Flowers yellow to red | |
| (a) Styles long and hairy, persisting on the fruit | <i>Geum</i> |
| (b) Styles short, inconspicuous | <i>Potentilla</i> |
| (2) Flowers white to pink | |
| (a) Herbs; clusters few-flowered | <i>Fragaria</i> |
| (b) Shrubs; clusters many-flowered | <i>Spiraea</i> |
| b. Petals absent; calyx lobes petal-like | <i>Poterium</i> |

Rosa—Rose
(Lat. *rosa*, Gr. *rhodon*, rose)

- | | |
|--|------------------|
| Leaflets thick, wrinkled; stem densely prickly | <i>R. rúgosa</i> |
|--|------------------|

Géum—Avens
(Gr. *geuma*, taste, perhaps from the root)

- | | |
|--|---------------------|
| Stem leaves 3-parted; flowers paniced, red | <i>G. coccíneum</i> |
|--|---------------------|

Potentilla—Potentilla, Cinqfoil, Five-finger
(Lat. *potens*, powerful, from reputed medical properties)

- | | |
|--|------------------------------------|
| 1. Shrubs; leaflets 5-7, hairy; flowers 1½-3 cm. wide | <i>P. fruticósa</i> |
| 2. Herbs; flowers ½-1½ cm. wide | |
| a. Leaflets 5, silvery white below; plants spreading | <i>P. argénteá</i> |
| b. Leaflets 3, hairy on both sides, not silvery; erect | <i>P. monspeliensis norwég-ica</i> |

Fragária—Strawberry
(Lat. *fragum*, strawberry)

- | | |
|--|----------------------|
| Leaves thick, hairy; flower stalks shorter than the leaves | <i>F. virginiána</i> |
|--|----------------------|

Spiráea—Spiraea, Meadowsweet, Bridal Wreath
(Gr. *spiraea*, meadowsweet, perhaps from the twisted stem)

- | | |
|------------------------------------|----------------------|
| 1. Flowers white, in simple umbels | <i>S. Van Eyckii</i> |
| 2. Flowers pink | |
| a. Flowers in umbels or corymbs | <i>S. Spachii</i> |
| b. Flowers in dense panicles | <i>S. Douglasii</i> |

Potérion—Burnet

(Gr. *poterion*, a drinking cup, from the form of the calyx)

- | | |
|--|----------------------|
| Leaves of 7-19 small leaflets; flowers green to purplish, in heads | <i>P. sanguinale</i> |
|--|----------------------|

Fabáceae—Pea Family

Herbs or woody plants, with alternate usually compound leaves, sepals 4, usually small; petals typically 5, and of three different forms, standard, wings and keel, but in some cases more or less similar, stamens 5-many, pistil single, simple, fruit typically a legume, sometimes siliqua-like; flower apocarpous, apopetalous, hypogynous, irregular.

1. Leaves compound

a. Leaflets digitate or apparently so, 2-15

- | | |
|--------------------------|-----------------|
| (1) Leaflets 2 | <i>Lathyrus</i> |
| (2) Leaflets more than 3 | <i>Lupinus</i> |
| (3) Leaflets 3 | |

(a) Leaflets toothed

- | | |
|-------------------------------|------------------|
| x. Flowers in slender racemes | <i>Medicago</i> |
| y. Flowers in spikes or heads | |
| (x) Flowers blue or yellow | <i>Medicago</i> |
| (y) Flowers red or white | <i>Trifolium</i> |

(b) Leaflets entire

- | | |
|--|------------------|
| x. Fruit a legume; mostly climbers | |
| (x) Calyx 5-toothed; cultivated | <i>Phaseolus</i> |
| (y) Calyx 4-toothed; native | <i>Faba</i> |
| y. Fruit a loment or achene; erect herbs | |
| (x) Fruit a 1-seeded achene | <i>Lupinus</i> |
| (y) Fruit a loment with 2-several seeds | <i>Desmodium</i> |

b. Leaflets pinnate, 4 many, or when fewer, tendril bearing

(1) Climbers or twiners, usually with tendrils

- | | |
|--|-----------------|
| (a) Leaves odd-pinnate; flowers brown-purple | <i>Lupinus</i> |
| (b) Leaves even-pinnate, tendril-bearing as a rule | |
| x. Style bearded down one face | <i>Lathyrus</i> |
| y. Style bearded at tip only | <i>Lupinus</i> |

(2) Erect herbs; tendrils mere remnants when present

- | | |
|--|-----------------|
| (a) Leaflets 4; flowers yellow; cultivated | <i>Arabis</i> |
| (b) Leaflets 5 or more | |
| x. Leaves sensitive, closing and drooping at touch | <i>Mimosa</i> |
| y. Leaves not sensitive to touch | |
| (x) Flowers pea-like | |
| m. Leaflets 2-14 | <i>Faba</i> |
| n. Leaflets 15-21 | <i>Carpinus</i> |

(y) Flowers not pea-like

- | | |
|--|-------------------|
| m. Flowers tiny, 4-6 mm. wide, in dense clusters | |
| (m) Stamens 5 | <i>Delphinium</i> |
| (n) Stamens 10 | <i>Pala</i> |
| n. Flowers 2-3 cm. wide, yellow, single | <i>Cassia</i> |

2. Leaves simple; flowers yellow; shrubby

Cassia

Lupinus—Lupine

(Lat. *lupus*, wolf)

- | | |
|---|-----------------------|
| Leaflets 13-15, lanceolate; flowers blue to white | <i>L. polyphyllus</i> |
|---|-----------------------|

Melilotus—Sweet Clover

(Gr. *meli*, honey, *lotus*, clover, from the fragrant leaves)

1. Flowers white; stem 1-3 m. tall; leaflets notched at tip *M. alba*
2. Flowers yellow; stem 1½-1 m. tall; leaflets blunt *M. officinalis*

Medicago—Alfalfa, Nonesuch

(Gr. *medike*, alfalfa, Lat. *-ago*, like)

1. Flowers blue; perennial *M. sativa*: alfalfa, lucerne
2. Flowers yellow; annual
 - a. Leaves oval to rounded; pod smooth, black, 1-seeded *M. lupulina*: nonesuch
 - b. Leaves cuneate, spotted; pod spiny, coiled, several seeded *M. maculata*: spotted medic

Trifolium—Clover, Alsike

(Lat. *tri-*, three, *folium*, leaf)

1. Heads round or nearly so
 - a. Flowers red, rarely white *T. pratense*: red c.
 - b. Flowers white to pinkish
 - (1) Stems erect or ascending, 3-6 dm. high *T. hybridum*: alsike
 - (2) Stems creeping, 1-2 dm. high *T. repens*: white c.
2. Heads oblong to cylindric
 - a. Heads 3-6 cm. long; red corolla exceeding calyx *T. incarnatum*: crimson c.
 - b. Heads 1-2 cm. long; whitish corolla shorter than calyx *T. arvense*: rabbit-foot

Phaseolus—Bean

(Gr. *phaselus*, string-bean)

1. Flower clusters longer than the leaf; flowers usually red *P. multiflorus*: scarlet runner
2. Flower clusters shorter than the leaf; flowers not red
 - a. Flowers greenish-white; pod broad; seeds flat *P. lunatus*: lima bean
 - b. Flowers white to purplish; pod narrow; seeds swollen
 - (1) Twining *P. vulgaris*: common b. kidney b.
 - (2) Bushy, not twining *P. nanus*: bush b.

Falcata—Wild Peanut

(Lat. *falcatus*, sickle-like, from the form of the keel)Leaflets ovate; flowers purplish to white; pods both aerial and subterranean *F. comosa*

Lespedeza—Bush Clover

(Named for Lespedez, a Spanish governor of Florida)

1. Flowers in heads, creamy or white; native *L. capitata*
2. Flowers in racemes, red-purple; cultivated *L. Sieboldii*

Desmodium—Tick-Trefoil, Telegraph Plant

(Gr. *desmos*, bond, chain, from the loment)Leaflets 3; end leaflet large, lateral ones small, moving up and down *D. gyrans*

Apios—Groundnut

(Gr. *apios*, pear, from shape of the tubers)Flowers purple-brown, fragrant; stems from strings of starchy tubers *A. tuberosa*

Lathyrus—Sweet Pea, Everlasting Pea

(Gr. *lathyros*, a kind of pulse)

1. Peduncles 2-4-flowered; flowers fragrant; annual *L. odoratus*
2. Peduncles many-flowered; flowers scentless; perennial *L. latifolius*

Vicia—Vetch, Vetch

(Lat. *vicia*, vetch)

1. Climbing; leaflets 20-24; flowers blue, small, reflexed *V. sativa*
2. Erect; flowers large, not reflexed
 - a. Leaflets 10-14; flowers in 2's, purplish *V. sativa* (small)
 - b. Leaflets 2-6; flowers clustered, white *V. faba* (broadbean)

Arachis—Peanut

(Gr. *arakos*, a pea-like plant)

- Leaflets 4, oblong; flowers yellow, the pod forming below ground *A. hypogaea*

Mimosa—Sensitive Plant

(Gr. *mimos*, actor, from its sensitivity)

- Leaves digitate on the common petiole, leaflets many; flowers rose, in heads *M. pudica*

Coronilla—Purple Coronilla

(Lat. *corona*, crown, -illa, small)

- Leaflets 15-21; flowers pink to white, in head-like umbels *C. varia*

Petalostemon—Prairie Clover

(Gr. *petalon*, petal, *stemon*, stamen, from the petals borne on the stamens)

- Leaflets 5, linear; flowers in a short spike, rose-purple *P. purpureum*

Dalea—Dalea

(Named for the English botanist, Dale)

- Leaflets 15-40, linear-oblong; flowers white to pink in an oblong spike *D. alpestrum*

Cassia—Senna, Partridge Pea

(Gr. *cassia*, a spice-bearing plant)

- Leaflets 20-30, oblong; flower nearly regular, large, yellow *C. sumatrana*

Genista—Genista, Whin

(Celtic, meaning little bush)

- Leaves lanceolate; flowers in racemes, small, yellow *G. tinctoria*

Saxifragaceae—Saxifrage Family

Herbs with simple or compound leaves; sepals 4-5, sometimes united, petals 5 or more, stamens $\frac{2}{3}$ ovary 1-2-celled, usually 2-beaked, or sometimes the two ovaries separate, stigma 2-4, fruit 1-celled or an achene; flower typically syncarpous and apopetalous, hypogynous, regular

1. Leaves simple
 - a. Stamens 4-5 *Heuchera*
 - b. Stamens 8-10 *Saxifraga*
2. Leaves 3-ternate; flowers white, in panicles *Astilbe*

Heuchera—Alum-root

(Named for the German botanist, Heucher)

- Leaves rounded, lobed; flowers red *H. sanguinea*

Saxifraga—Saxifrage

(Lat. *saxum*, rock, *frango*, to break, from its growing in rock crevices)

- Leaves heart-shaped, toothed, with long runners; flowers (triglob, 3 petals)
small, rose, 2 large, white *S. oppositifolia* (rock)
Sax. geranioides

Astilbe—Astilbe

(Gr. *a-*, without, *stilbe*, lamp, brightened)

- Leaflets oblong to lance-ovate; flowers small in a dense panicle *A. spicata*

Crassulaceae—Stonecrop Family

Herbs with fleshy leaves; sepals 3-5, petals 3-5, or some absent or also fleshy, stamens 3-10, pistil 3-5, separate as a rule, fruit a small follicle; flower axillary, sympetalous, hypogynous, regular, 1-2-lipped

1. Petals separate

2. Petals united at the very base

- a. Flower in 5's
- b. Flower in 4's

*Cotyledon**Bryophyllum*

Sédum—Stonecrop

(Lat. *sedeo*, to sit, from the habit of growing on walls and rocks)

- 1. Creeping; leaves 4-6 mm. long; flowers yellow
- 2. Erect; leaves 2-5 cm. long; flowers pink to white

S. acre: wall pepper*S. telephium*: live-for-ever

Cotylédon—Cotyledon

(Gr. *kotyledon*, cup, from the form of the corolla)

Leaves basal, wedge-shaped, glaucous; flowers red

C. orbiculata

Bryophýllum—Bryophyllum

(Gr. *bryon*, bud, *phyllon*, leaf, from the buds which form on the leaf)

Leaves ovate, simple or ternate; flowers large, greenish, hanging

B. calycinum

Hamamelidáceae—Witch-Hazel Family

Shrubs or trees, with simple alternate leaves; sepals 4, petals 4, stamens 8, 4 more or less imperfect, ovary 2-celled, styles 2, fruit a capsule; flower syncarpous, apopetalous, hypogynous, regular.

Hamamélis—Witch Hazel

(Gr. *hamamelis*, a kind of tree)

Tall shrub with obovate leaves; flowers yellow, appearing in autumn just before leaf-fall

H. virginica

Sapindales Maple Order

Sapindáceae—Soapberry Family

Woody plants or climbing herbs, mostly with compound leaves; in the following genus, the sepals are 4, petals 4, stamens 8, ovary 3-celled, styles 3, fruit a bladderly 3-lobed pod; flower syncarpous, apopetalous, hypogynous, nearly regular.

Cardiospérnum—Balloon-Vine, Heart-Seed

(Gr. *kardia*, heart, *sperma*, seed, from the heart-shaped seed scale)

Leaves 2-ternate, alternate; flower clusters with hook-like tendrils; flowers white; seed with a heart-shaped scale

C. haledacabum

Lythrales Loosestrife Order

Lythráceae—Loosestrife Family

Herbs with simple opposite entire leaves; sepals 5-7, united into a tube enclosing the ovary, petals 4-7 or none, stamens 4-14, ovary 1-4-celled, stigma 1, sometimes 2-lobed, fruit a capsule; flower syncarpous, apopetalous, rarely apetalous, hypogynous, regular, or somewhat irregular.

- 1. Petals present; calyx not spurred
- 2. Petals absent; calyx spurred at base

*Lythrum**Cuphea*

Lýthrum—Loosestrife

(Gr. *lythron*, blood, from the color)

Leaves lanceolate; flowers with 6-7 pink petals

L. salicária

Cúphea—Cigar Plant

(Gr. *kuphos*, hump, from the spur)

Leaves lance-ovate, glossy; flowers bright red

C. platycéntra

Onagráceae—Evening-Primrose Family

Herbs or shrubs with simple leaves; sepals 2-6, united and grown to the ovary, petals 2-6, mostly 4, stamens 2-12, mostly 8, ovary usually 2-4 celled, stigma one, often 4-lobed; fruit a capsule or berry; flower syncarpous, apopetalous, epigynous, regular, rarely irregular.

1. Flowers regular

a. Herbs; calyx not brightly colored

- (1) Seeds hairy; flowers rose purple in a long spike
 (2) Seeds not hairy; flowers yellow, white or rose

b. Shrubs; calyx bright-colored, spreading

2. Flowers irregular; petals apparently 5; stamen 1

Chamaenerium—Fireweed

(Gr. *chamal*-, ground, *nerion*, rose, fire)

Leaves lanceolate, entire; flowers 2-3 cm. wide

Chamaenerium
Oenothera
Fuchsia
Lupinus

S. sanguinalis

Oenothera—Evening Primrose, Golderia

(Gr. *oinotheras*, a plant which smokes at night)

1. Flowers yellow

a. Capsule winged

- (1) Plant low, almost trailing; leaves petioled
 (2) Plant erect, 3-10 dm. high; leaves sessile

b. Capsule 4-angled, not winged

- (1) Petals about 2 cm. long; native weed
 (2) Petals 3-7 cm. long; cultivated

2. Flowers white to pink or red

a. Stemless

- (1) Blooming by day
 (2) Blooming at nightfall

b. Stemmed

- (1) Flowers white; capsule winged
 (2) Flowers rose to purple

O. biennis
O. fruticulosa
O. lutea
O. l. grandiflora
O. longistylis

O. serotina
O. portulaca

O. spheerula
O. purpurea

Fuchsia—Fuchsia

(Named for the German botanist Fuchs)

1. Flowers hanging

- a. Tube of calyx shorter than lobes
 b. Tube of calyx 2-5 times longer than the lobes

2. Flowers erect

- a. Erect shrub; flowers in a panicle
 b. Trailing; flowers solitary

F. macrocarpa
F. hybrid
F. arbuscula
F. procumbens

Lopézia—Lopezia

(Named for an early Spanish naturalist, Lopez)

Leaves lance-oblong to ovate; flowers rose, 5-6 mm. wide

L. lanceolata

Cactales Cactus Order

Cucurbitaceae—Gourd Family

Herbs, usually with tendrils and alternate lobed leaves; sepals 5, united with each other and with the ovary, petals usually 5, united, stamens usually 3, ovary 1-3-celled, sigmoid, 2-3, from a pedicel; rarely a capsule or achene; flower syncarpous, monoecious or dioecious, sometimes syngamous, regular.

1. Flowers large, 3-15 cm. mostly yellow or yellowish

a. Staminate flowers solitary

- (1) Flowers white
 (2) Flowers yellow
 (a) Flowers bright yellow, bell shaped; stigma lobes 6
 (b) Flowers pale yellow, shallow; stigma lobes 3

b. Staminate flowers clustered

- (1) Tendrils present; fruit 3-6 dm. long
 (2) Tendrils lacking; fruit 3-5 cm. long, bristly, scabring

2. Flowers small, ½-2 cm., white or greenish

a. Leaves compound; leaflets 3-7

Lagenaria
Cucurbita
Cucumis

Luffa
Echinocystis

C. chinensis

b. Leaves simple, lobed

(1) Ovary and fruit 1-seeded

Sicyos

(2) Ovary and fruit several-seeded

Micrampelis

Lagenária—Gourd, Calabash

(Lat. *lagena*, bottle, from the fruit)

Leaves rounded; the fruit club- or flask-shaped

L. vulgaris

Cucúrbita—Pumpkin, Squash

(Lat. *cucurbita*, squash)

1. Leaves lobed; fruit stalks strongly ridged

C. pépo: pumpkin

2. Leaves not lobed; fruit stalks scarcely ridged

C. máxima: squash

Cúcumis—Cucumber, Muskmelon

(Lat. *cucumis*, cucumber)

1. Leaves lobed

C. sativa: cucumber

2. Leaves rounded, not lobed

C. mélo: melon

Lúffa—Dishcloth Gourd, Vegetable Sponge

(The Arabic name)

Leaves round, many-lobed; flowers yellowish

L. aegyptiaca

Ecbállium—Squirting Cucumber

(Gr. *ekballo*, to cast out, from the fruit)

Leaves ovate, heart-shaped at base; flowers yellow

E. elatérium

Cyclanthéra—Cyclanthera

(Gr. *kyklos*, circle, *anthera*, anther)

Leaflets oval, toothed or lobed; fruit ovoid, spiny

C. dissécta

Sícynos—Star Cucumber

(Gr. *sikyos*, cucumber)

Leaves with shallow lobes; fruits yellowish, spiny, clustered

S. angulátus

Micrámpelis—Wild Cucumber, Mock Apple

(Gr. *mikros*, small, *ampelis*, vine, from the climbing habit)

Leaves deeply 3-7-lobed; flowers fragrant; fruit bladdery, spiny

M. lobáta

Begoniáceae—Begonia Family

Herbs with alternate simple leaves; sepals 2, petals 2-5, stamens many, ovary 2-4-celled, styles 2-4, fruit a triangular capsule; flower syncarpous, monoecious, apopetalous, epigynous, often irregular.

Begónia—Begonia, Elephant's Ear

(Named for Begon, a governor of Santo Domingo)

The species and varieties are numerous and closely related; see Bailey's Cyclopaedia of Horticulture, 1:143.

Apiales Parsley Order

Apiáceae—Carrot Family

Herbs, with alternate mostly compound leaves; sepals united and completely fused with the ovary, the calyx usually appearing absent as a consequence, petals 5, stamens 5, ovary 2-celled, styles 2, fruit of twin achenes; flower syncarpous, apopetalous, epigynous, usually regular, the flowers typically in umbels.

1. Flowers in umbels; leaves not prickly

a. Flowers white or cream-colored

(1) Leaves simple, lobed, 2-4 dm. wide; umbels 1-2 dm. wide

Heracleum

(2) Leaves compound

(a) Fruits prickly

Daucus

(b) Fruits smooth

Apium

b. Flowers yellow, yellowish or greenish

(1) Flowers yellow

(a) Leaf divisions thread-like

Fumaria

(b) Leaf divisions broad

Fatima

(2) Flowers yellowish or greenish

(a) Leaf divisions thread-like

Adonis

(b) Leaf divisions wedge-shaped, lobed

Carum

2. Flowers in heads

Lysichiton

Heracleum—Cow Parsnip

(Gr. *Herakleios*, of Hercules, from the great size)

Tall, 1-3 m. high; leaves very hairy

H. lanatum

Daucus—Carrot

(Gr. *daukos*, carrot)

Leaves finely cut; fruiting umbel cup-shaped

D. carota

Apium—Celery

(Lat. *apium*, parsley)

Leaves 3-7-pinnately divided; umbels small; in one variety, the root is turnip-like

A. graveolens

Foeniculum—Fennel

(Lat. *foenum*, hay)

Smooth, 1-2 m. high; sweet aromatic

F. vulgare

Pastinaca—Parsnip

(Lat. *pastus*, food)

Leaflets coarse, toothed or lobed; poisonous when wild

P. sativa

Anethum—Dill

(Gr. *anethon*, anison, anise, dill)

Stem smooth, about 1 m. high; petals falling quickly

A. graveolens

Carum—Parsley

(Gr. *karon*, carum, caraway)

Flowers greenish; cultivated

C. persicillare

Eryngium—Sea Holly

(Gr. *eryngion*, name of a plant)

1. Bracts below the head 7-8

E. yuccifolium

2. Bracts below the head 10-20

E. alpinum

Rubiales Madder Order

Rubiaceae—Madder Family

Herbs or shrubs with opposite or whorled leaves; sepals united, completely adnate with the ovary, or with 4-5 free lobes, petals 4-5 or more united, stamens 4-5, ovary 2-celled, superior 2-fruit a 2-seeded capsule; flower syncarpous, sympetalous, epigynous, regular

1. Leaves whorled; flowers tiny, 4-parted

Linum

2. Leaves opposite; flowers large

a. Flowers solitary, fragrant; corolla 5-9-lobed

Gardenia

b. Flowers clustered; corolla 4-lobed

Rauvolfia

Galium—Bedstraw

(Gr. *galion*, bedstraw, *gaia*, milk, from the cooling effect of some species)

Leaves lance-linear, in 4's; flowers white, in a panicle

G. verum

Gardenia—Gardenia, Cape Jessamine

(Named for Dr. Garden, an American correspondent at London)

Leaves oblong, bright green; flowers large, white, often double

G. florida

Bouvardia—Bouvardia

(Named for Bouvard, a French botanist)

Leaves opposite, ovate-acuminate; flowers white

B. asiatica

Caprifoliaceae—Honeysuckle Family

Shrubs or vines, rarely herbs, with mostly simple opposite leaves; sepals united, more or less completely fused with the ovary, petals 5, united, ovary 2-5 celled, stigma 1-3, fruit a capsule or berry; flower syncarpous, sympetalous, epigynous, regular or irregular.

Lonicera—Honeysuckle

(Named for the German herbalist, Lonitzer)

Leaves oblong, united in pairs above; flowers trumpet-like, red or yellow; berry red

L. sempervirens: trumpet-et h.

Campanales Bluebell Order

Campanulaceae—Bluebell Family

Herbs with alternate leaves and milky juice; sepals 5, united, petals 5, united, stamens 5, ovary 2-5-celled, stigmas 2-5, fruit a capsule; flower syncarpous, sympetalous, epigynous, regular or irregular.

1. Flowers regular
 - a. Flowers bell-shaped
 - b. Flowers cup- or saucer-shaped
2. Flowers irregular, the tube slit

Campanula
Platycodon
Lobelia

Campanula—Bluebell, Harebell

(Lat. *campana*, bell, from the form of the corolla)

1. Stigmas 3; calyx without appendages
 - a. Native; flowers nodding; leaves linear
 - b. Cultivated
 - (1) Flowers solitary; leaves ovoid, petioled
 - (2) Flowers in a raceme; leaves lance-ovate, sessile
2. Stigmas 5; calyx with leafy appendages

C. rotundifolia
C. carpathica
C. rapunculoides
C. medium: Canterbury bells

Platycodon—Platycodon

(Gr. *platys*, flat, *kodon*, bell, from the corolla)

Leaves ovate, toothed; corolla blue or white, 4-6 cm. wide

P. grandiflorum

Lobelia—Lobelia

(Named for the herbalist Lobelius)

Stems tufted, 4-6 in. high; leaves lanceolate; flowers blue

L. erinus

Asterales Aster Order

Valerianaceae—Valerian Family

Herbs with opposite leaves; sepals adherent to the ovary, often invisible in flower, becoming pappus-like in fruit, petals 5, united, stamens 1-3, ovary 3-celled, but only one cell with an ovule, stigmas 1-3, fruit an achene; flower syncarpous, sympetalous, epigynous, regular or irregular.

1. Stamens 3; corolla without basal spur
2. Stamen 1; corolla with basal spur

Valeriana
Centranthus

Valeriana—Valerian

(Lat. *valeo*, to be well, from the medicinal root)

1. Leaflets 11-21
2. Leaflets 3-7
 - a. Rootstalk horizontal
 - b. Rootstalk long, tuberous

V. officinalis
V. phu
V. edulis

Centranthus—Spurred Valerian

(Gr. *kentron*, spur, *anthos*, flower)

Leaves lance-ovate, nearly entire; flowers red to white

C. ruber

Dipsaceae—Teasel Family

Herbs with opposite leaves; calyx tube forming a border above the ovary, corolla 4-5-lobed, stamens 4, ovary 1-celled, stigma 1, fruit an achene; flower syncarpous, sympetalous, epigynous, regular or irregular.

1. Flowers in an oblong prickly head
2. Flowers in a flat head, without prickles

Dipsacus
Scabiosa

Dipsacus—Teasel
(Gr. *dipsak-os*, teazel)

Leaves lance-oblong; flowers bluish

D. fullonica

Scabiosa—Sweet Scabious
(Lat. *scabies*, itch, from its use in skin diseases)

1. Flowers purple, red or white
2. Flowers light blue

S. atropurpurea
S. columbata

Asteraceae—Aster Family

Herbs with flowers in dense involucre heads; sepals (pappus) 5, toothed, naked, smooth, etc., or wanting; petals 5, united by their anthers; stamens 5 or 0, united by their anthers; ovary 1-celled, 2-cleft, stigmas 2; flower syncarpous, sympetalous, regular or irregular, epigynous. The flowers of the head may be all tube-shaped, or the outer row or so may be ribbon-shaped, or all may be ribbon-shaped. The receptacle is flat or more or less conical, naked (i. e., bearing none the flowers) or bearing scales among the flowers. The head is surrounded by 1 or more rows of involucral leaves.

Key to the Genera

1. Flowers tube-shaped, no ray or ribbon-like flowers present



Tubular heads of *Lacinia*—long section, and tube-shaped flower

- a. Flowers bright-colored; heads conspicuous

- (1) Leaves or involucre spiny

- (a) Leaves spiny

- x. Pappus of plumy bristles

- (x) Involucral scales thick and fleshy, cartilaginous

- (y) Involucral scales not thick and fleshy, hairy

- y. Pappus none

- (b) Involucre spiny with hooked spines

- (2) Leaf and involucre without spines

- (a) Heads in long spikes

Onoseris
Carduus
Cirsium
Achillea

Lactuca

- (b) Heads in flat-topped clusters, or single
 - x. Involucral scales dry and papery, yellow to white or red
 - (x) Leaves white-cottony, extending along the stem as wings *Ammobium*
 - (y) Leaves not white-cottony, stem not winged *Helichrysum*
 - y. Involucral scales not papery, usually green
 - (x) Heads white, yellowish or purplish; native
 - m. Heads white, pink or purplish *Eupatorium*
 - n. Heads yellowish *Kuhnia*
 - (y) Heads deep purple or blue
 - m. Heads deep purple; native *Vernonia*
 - n. Heads blue, rarely white; cultivated *Ageratum*
- b. Flowers greenish; heads inconspicuous
 - (1) Leaves broad, ovate, not deeply lobed
 - (a) Involucre forming a hooked bur *Xanthium*
 - (b) Involucre not hooked *Iva*
 - (2) Leaves narrow or deeply lobed
 - (a) Leaves strong-scented
 - x. Pappus a short crown *Tanacetum*



Radiate head of *Cosmos* with long section, ray flower and tubular or disk flower.

- y. Pappus none
 - (x) Receptacle smooth *Artemisia*
 - (y) Receptacle chaffy *Grindelia*
- (b) Leaves not strong-scented
 - x. Pappus a crown, or none *Achillea*
 - y. Pappus of two or more barbed awns *Bidens*
- 2. Flowers of two kinds, tubular and ray, or all ray in doublel form
 - a. Heads with chaff, i. e., each flower with a scale
 - (1) Ray flowers trumpet-shaped *Conium*
 - (2) Ray flowers flat, ribbon- or strap-shaped
 - (a) Rays white
 - x. Leaves pinnately dissected, strong-scented *Anthemis*
 - y. Leaves not dissected or strong-scented *Galium*
 - (b) Rays yellow or purple
 - x. Disk globose to cylindric
 - (x) Chaff stout or spiny; rays white, red or purple
 - m. Chaff equalling the disk flowers *Zinnia*
 - n. Chaff much longer than the disk flowers *Eriogonum*
 - (y) Chaff soft; rays yellow
 - m. Disk globose; achenes 4-angled *Rudbeckia*
 - n. Disk oblong to cylindric; achenes wing-margined *Ratibida*
 - y. Disk flat or slightly convex
 - (x) Bracts of the involucre united, at least one series
 - m. Chaff broad; achenes flat, winged-margined *Dahlia*
 - n. Chaff linear or long-pointed; achenes not flat or winged
 - (m) Rays white to pink or red *Colinus*
 - (n) Rays yellow to maroon
 - r. Pappus teeth barbed upward or downward *Bidens*
 - s. Pappus teeth smooth or lacking *Cercopit*
 - (y) Bracts not united, or somewhat so at base
 - m. Achenes broad, winged
 - (m) Rays in 2-3 rows; disk flowers sterile *Silphium*
 - (n) Rays in 1 row; disk flowers fertile *Peribotia*
 - n. Achenes not winged
 - (m) Rays neutral, deciduous
 - r. Pappus of two triangular awns; achenes 4-angled *Helianthus*
 - s. Pappus of two awns and small scales; achene flat *Helianthus*
 - (n) Rays pistillate, persistent; pappus crown like *Helianthus*
 - b. Heads without chaff; the receptacle slightly bristly in one or two cases
 - (1) Pappus of capillary bristles
 - (a) Rays yellow
 - x. Heads small, 2-8 mm. *Salvia*
 - y. Heads larger, 1-3 cm. *Chrysopsis*
 - (b) Rays white to blue or purple
 - x. Heads single, on short scapes *Bellis*
 - y. Heads several-many
 - (x) Rays narrow and many; bracts in 1-3 rows *Eriogonum*
 - (y) Rays broader and fewer; bracts in 3-5 rows
 - m. Pappus double; cultivated annual *Callistephus*
 - n. Pappus single; native
 - (m) Heads in a panicle *Aster*
 - (n) Heads in a cymose cluster *Quadrifida*
 - (2) Pappus none, or of 5-12 scales or bristles
 - (a) Pappus none
 - x. Achenes of disk small and aborted *Epipactis*

- y. Achenes of disk normal
 - (x) Achenes flat *Achillea*
 - (y) Achenes 4-angled *Chrysanthemum*
- (b) Pappus present
 - x. Rays white
 - (x) Pappus of bristles and awns *Boltonia*
 - (y) Pappus a short-toothed crown
 - m. Receptacle nearly flat *Chrysanthemum*
 - n. Receptacle conic or ovoid *Matricaria*
 - y. Rays yellow or orange
 - (x) Bracts united into a deep cup
 - m. Leaves finely cut; heads very small *Dysodia*
 - n. Leaves coarsely cut; heads large *Tagetes*
 - (y) Bracts not united
 - m. Bracts squarrose-spreading *Grindelia*
 - n. Bracts not squarrose-spreading
 - (m) Leaves typically lobed; achenes densely hairy *Gaillardia*
 - (n) Leaves not lobed; achenes smooth or nearly so *Helenium*
- 3. Flowers strap-shaped, all alike



Ligulate head of dandelion, *Taraxacum*: showing the habit of the plant, long section of the head, a ligulate or strap-shaped flower, and a parachute fruit.

- a. Heads on a scape
- b. Heads on a leafy stem
 - (1) Pappus branches united by hairs
 - (2) Pappus branches not so united
 - (a) Pappus capillary
 - x. Achenes flattened
 - (x) Achenes blunt
 - (y) Achenes beaked
 - y. Achenes cylindric or angled
 - (x) Flowers yellow or orange
 - m. Pappus brown or brownish
 - n. Pappus white
 - (y) Flowers white or cream-colored
- (b) Pappus of blunt scales; flowers blue

Taraxacum

Trichospora

Senecio

Lactuca

Hieracium

Cirsium

Valeriana

Cyanus

Cynara—Artichoke, Cardoon

(Gr. *kinara*, artichoke)

- 1. Leaves woolly below; head smooth
- 2. Leaves smooth; heads prickly

C. scolymus

C. cardunculus

Carduus—Thistle

(Lat. *carduus*, thistle)

- 1. Heads less than 3 cm.
- 2. Heads more than 3 cm.
 - a. Lower surface of leaf brown hairy
 - b. Lower surface of leaf densely white woolly
 - (1) Leaves usually lobed or dentate
 - (2) Leaves typically pinnatifid
 - (a) Leaves white woolly above
 - (b) Leaves green above

C. arvensis—*field*
thistle

C. lanceolatus—*large*
thistle

C. arvensis—*red* *thistle*

C. marianthus—*white*
thistle

C. marianthus—*red* *thistle*

Carthamus—Safflower, False Saffron

(Ar. *qartama*, paint, because of the yellow dye it yields)

Leaves oblong-ovate; flowers orange

C. tinctorius

Arcium—Burdock

(Gr. *arktion*, a plant, from *arktos*, bear, referring to the burr)

A biennial weed with large ovate leaves

A. lappa

Laciniaria—Blazing Star

(Lat. *lacinia*, tear, fringe, referring to the heads)

- 1. Bracts pointed
 - a. Heads 15-60-flowered
 - (1) Tips of bracts rigid and spreading
 - (2) Tips closely appressed
 - b. Heads 3-6-flowered
 - (1) Heads crowded in a long spike; bract tips spreading
 - (2) Heads loose in a short spike; bracts appressed
- 2. Bracts obtuse, not pointed
 - a. Heads 10-25 mm., 15-45-flowered
 - b. Heads 4-8 mm., 5-15-flowered

L. sparganium

L. cymatoceros

L. pinnatifidum

L. pinnatifidum

L. pinnatifidum

L. pinnatifidum

Annobium—Everlasting

(Gr. *amos*, sand, *bios*, living)

Leaves lanceolate, cottony, extending down the stem as wings; heads white

A. album

Helichrysum—Everlasting

(Gr. *helios*, sun, *chrysos*, gold, referring to the golden heads of some varieties)

Leaves lance-oblong, entire; scales papery, yellow, white or pink

H. bracteatum

Eupatorium—Eupatorium

(Gr. *eupatorium*, a kind of medicinal plant)

1. Leaves petioled

a. Leaves in whorls of 3-6

(1) Leaves hairy and wrinkled

E. maculatum

(2) Leaves smooth

E. purpureum: Joe-pye weed

b. Leaves opposite

E. ageratoides: sanicle

2. Leaves sessile, opposite as a rule

a. Leaves narrowed at base

E. altissimum

b. Leaves clasping, perfoliate

E. perfoliatum: boneset

Kúhnia—Kuhnia

(Named for Dr. Kuhn, a botanical collector of the 18th century)

Leaves lanceolate; heads cream-colored

K. eupatorioides

Vernonia—Ironweed

(Named for Vernon, an English botanist)

1. Bracts with long spreading awns

V. noveboracensis

2. Bracts merely acute

V. fasciculata

Ageratum—Ageratum

(Gr. *ageraton*, everlasting)

Leaves ovate or cordate; flowers blue, rarely white

A. mexicana

Xanthium—Cocklebur

(Gr. name of a plant yielding a yellow dye; *xanthos*, yellow)

Leaves ovate; involucre with hooked spines

X. canadense

Iva—Marsh Elder

(Of doubtful meaning)

Leaves ovate, white below; involucre smooth

I. xanthifolia

Tanacetum—Tansy

(From *tansy*, everlasting, from Gr. *athanasia*, immortality)

Leaves twice pinnatifid, strong-scented; flowers greenish yellow

T. vulgare

Artemisia—Wormwood

(From *Artemisia*, wife of Mausolus)

1. Leaves entire or lobed at tip

a. Leaves glabrous, linear

A. dracunculoides

b. Leaves densely hairy or woolly

(1) Leaves linear

A. glauca

(2) Leaves oblong to lanceolate

A. gnaphalodes

2. Leaves divided

a. Heads erect

(1) Leaves typically hairy; perennial

A. canadensis

(2) Leaves glabrous; annual or biennial

A. biennis

b. Heads drooping

(1) Leaves silvery

A. frigida

(a) Leaf segments linear

A. absinthium

(b) Leaf segments broad, ovoid

A. abrotanum

(2) Leaves green

Ambrósia—Ragweed, Kinghead

(Gr. name of a plant)

1. Leaves palmately divided; tall

A. trifida

2. Leaves pinnately divided

- a. Annual; fertile heads clustered; involucre spiny
- b. Perennial; fertile heads solitary; involucre naked or warted

A. arvensis
A. peduncularis

Bidens—**Bidens**, Beggar-ticks

(Lat. *bi*-, two, *dens*, tooth, from the awned achenes)

1. Heads yellow

- a. Heads nodding after flowering
- b. Heads always erect

B. biternata

- (1) Rays conspicuous; heads 4-6 cm. wide
- (2) Rays small or wanting; heads 1-4 cm. wide
 - (a) Leaves not divided
 - x. Outer bracts 2-4 times longer than head
 - y. Outer bracts not longer than head
 - (b) Leaves pinnately 3-5-divided

B. laevis

B. frondosa

B. canadensis

B. frondosa

B. aristata

2. Heads red

Centaurea—**Bachelor's Button**, **Bluebottle**

(Gr. name of the centaur)



Head of bluebottle, *Centaurea*, with long section, and two kinds of *Achene*.
Leaves gray, linear; rays blue, more rarely white or pink

C. cyanus

Anthemis—Chamomile, Mayweed

(Gr. *anthemis*, flower, perhaps referring to the many flowers)

1. Rays white
 - a. Rays pistillate
 - (1) Chaff acute or pointed *A. arvensis*
 - (2) Chaff blunt or rounded *A. nobilis*
 - b. Rays without pistils *A. cótula*
2. Rays yellow *A. tinctoria*

Galinsóga—Galinsoga

(Named for Galinsoga, a Spanish botanist)

- Low weed, with inconspicuous rays and broad leaves *G. parviflora*

Zinnia—Zinnia

(Named for Zinn, a German botanist)

- Cultivated annuals, generally with double or partly double flower heads of various shades of dull yellow, orange, red and purple *Z. elegans*

Echinácea—Purple Coneflower

(Gr. *echinos*, hedgehog, referring to the bristly head)

1. Leaves dentate; rays 15-20, dull purple *E. purpurea*
2. Leaves entire; rays 12-15, rose-purple *E. angustifolia*

Rudbéckia—Coneflower

(Named for the Swedish botanists, Rudbeck)

1. Heads single
 - a. Leaves entire or nearly so; disk purple-brown *R. hirta*
 - b. Leaves deeply cut, except the upper; disk yellow *R. laciniata*
2. Heads doubled *R. laciniata*: golden glow

Ratibida—Coneflower

(Of doubtful meaning)

1. Disk cylindric, yellow *R. columnaris*
2. Disk oblong, brown *R. pinnata*

Dáhlia—Dahlia

(Named for Dahl, a Swedish botanist)

- Roots tuberous, fascicled; leaves pinnate; flowers white to red *D. variabilis*

Cósmos—Cosmos

(Gr. *kosmos*, order, world)

- Leaves twice pinnatifid; flowers white to red, rarely yellow *C. bipinnatus*

Coreópsis—Coreopsis, Tickseed

(Gr. *koris*, bug, *opsis*, likeness)

1. Leaves 2-pinnate; rays often maroon *C. tinctoria*
2. Leaves 1-pinnate or simple
 - a. Annual; leaves or leaflets oval *C. Drummondii*
 - b. Perennial; leaves or leaflets lanceolate
 - (1) Leaves with 3, sometimes 5, leaflets *C. tripteris*
 - (2) Leaves simple *C. lanceolata*
3. Leaves palmately 3-lobed *C. palmata*

Sílpium—Silphium

(Gr. name of a resinous plant)

1. Leaves simple, united at base into a cup *S. perfoliatum*: cup plant
2. Leaves very large, deeply pinnatifid *S. laciniatum*: compass plant

Verbésina

(Of doubtful meaning)

- Tall cultivated perennial with rough lanceolate leaves and yellow flowers; disk flowers large, campanulate *V. alternifolia*

Helianthus—Sunflower

(Gr. *helios*, sun, *anthos*, flower, referring to the golden heads)

1. Disk brown or purplish
 - a. Leaves opposite, thick, lanceolate; perennial *H. scaberrimus*
 - b. Leaves mostly alternate, thinner, ovate; annual; heads yellow, single in the cultivated forms *H. annuus*
2. Disk yellow
 - a. Leaves long, mostly lance-shaped
 - (1) Leaves petioled; stem glaucous *H. grosseserratus*
 - (2) Leaves sessile
 - (a) Stem smooth *H. divaricatus*
 - (b) Stem rough
 - x. Leaves mostly entire, usually folded *H. macrodon*
 - y. Leaves toothed, flat *H. giganteus*
 - b. Leaves ovoid
 - (1) Stem smooth or soft hairy *H. scaberrimus*
 - (2) Stem rough or bristly hairy *H. filiformis*

Helianthella—Alpine Sunflower

(A Greek-Latin hybrid, meaning little sunflower)

Leaves opposite, very long; heads 5-10 cm. wide, yellow *H. americana*

Heliopsis—Oxeye

(Gr. *helios*, sun, *opsis*, look, from the yellow rays)

Leaves ovate; rays pistillate, yellow *H. scabra*

Solidago—Golden-rod

(Lat. *solidus*, whole, from its reputed healing properties)

1. Heads in a flat-topped cluster
 - a. Rays fewer than the disk flowers
 - (1) Leaves ovate to oblong, rough *S. rigida*
 - (2) Leaves long, lanceolate, smooth *S. hidalgoi*
 - b. Rays more numerous than the disk flowers; leaves linear *S. graminifolia*
2. Heads in a terminal much-branched conical cluster
 - a. Stem and leaves glabrous or nearly so
 - (1) Heads in a compact rounded thyrse *S. speciosa*
 - (2) Heads in one-sided spreading clusters
 - (a) Leaves 3-nerved
 - x. Tall, 1-2 m. high; along streams and in meadows *S. serotina*
 - y. Low, ½ m. high; on prairies and plains *S. nemoralis*
 - (b) Leaves without a strong pair of lateral veins
 - x. Racemes few; heads 4-6 mm. high *S. nemoralis*
 - y. Racemes many; heads 3-4 mm. high *S. serotina*
 - b. Stems and leaves hairy
 - (1) Leaves lanceolate, serrate, long pointed *S. canadensis*
 - (2) Leaves oblanceolate to broadly spatulate
 - (a) Leaves green, rough on both sides *S. rigida*
 - (b) Leaves gray or ashy
 - x. Leaves faintly 3-nerved *S. nemoralis*
 - y. Leaves strongly 3-nerved *S. serotina*
3. Heads mostly in axillary clusters
 - a. Rays white; leaves hairy, blunt *S. hidalgoi*
 - b. Rays yellow; leaves smooth, long-pointed *S. speciosa*

Chrysopsis—Chrysopsis

(Gr. *chrysos*, gold, *opsis*, likeness)

Leaves hairy, oblong; heads yellow *C. maritima*

Béllis—English Daisy

(Lat. **bellis**, daisy, from **bellus**, beautiful)

Leaves basal, spatulate; heads usually double, white to pink

B. perénis

Erigeron—Daisy

(Gr. **eri-**, very, **geron**, old man, referring to the hoary heads)

1. Heads 2-3 mm. wide; rays inconspicuous

E. canadénsis

2. Heads 5-20 mm. wide; rays conspicuous

a. Rays 40-70

E. ánnuus

b. Rays 100-150

E. philadélficus

Callistephus—Garden Aster

(Gr. **kalli-**, beautiful, **stephos**, wreath)

Double asters of the garden

C. chinénsis

Áster—Aster

(Gr. **aster**, star, in reference to the head)

1. Lower leaves heart-shaped, petioled

a. Rays white, violet or pink

(1) Rays white, 6-10

A. divaricátus

(2) Rays violet, 5-16

A. macrophýllus

b. Rays blue to purple

(1) Leaves entire

A. azúreus

(2) Leaves toothed

(a) Stem smooth

x. Heads 4-6 mm. high; leaves hairy

A. cordifólius

y. Heads 6-10 mm. high; leaves smooth

A. sagittifólius

(b) Stem finely hairy

A. Drummondii

2. Lower leaves not petioled and heart-shaped

a. Stem leaves clasping by a heart-shaped base

(1) Stem smooth or nearly so

(a) Leaves entire

x. Leaves oblong to ovate

A. lévis

y. Leaves linear or lance-linear

(x) Bracts of the involucre in 3-4 rows

A. júnceus

(y) Bracts of the involucre in 1-2 rows

A. longifólius

(b) Leaves toothed

A. lévis

(2) Stem rough or hairy

(a) Leaves entire

x. Stem rough

A. párens

y. Stem hairy

A. novae-angliae

(b) Leaves toothed

A. puníceus

b. Leaves sessile, slightly or not at all clasping

(1) Leaves densely silky-silvery, entire; rays blue

A. seríceus

(2) Leaves not silky-silvery

(a) Stem leaves linear, entire

x. Heads 16-25 mm. wide

A. ptarmacóides

y. Heads 6-12 mm. wide

(x) Heads in 1-sided racemes

A. multiflórus

(y) Heads not in 1-sided racemes

A. ericóides

(b) Stem leaves oblong to lanceolate

x. Stem and leaves hairy

A. oblongifólius

y. Stem and leaves not hairy

(x) Heads 10-15 mm. wide

A. Tradescánti

(y) Heads 15-25 mm. wide

A. salicifólius(incl. *A. paniculátus*)

Doellíngera—Doellíngera

(Named for Doellinger, a botanical explorer)

Leaves lanceolate; rays small, white

D. umbelláta

Achilléa—Yarrow, Milfoil

(Named for Achilles)

1. Heads white
 - a. Heads single; leaves finely dissected *A. millefolium*
 - b. Heads double; leaves simple *A. ptarmica*
2. Heads yellow *A. eupatorioides*

Chrysánthemum—Chrysanthemum, Daisy

(Gr. *chrysos*, gold, *anthemon*, flower)

1. Heads large, few or solitary
 - a. Heads with a single row of white rays
 - (1) Leaves spatulate *C. leucanthemum*
 - (b) Cultivated plant with thick crenate leaves *C. latifolium*
 - (2) Leaves lance-ovate, toothed; cultivated *C. pilgouianum*
 - b. Heads variously colored, usually with many rows of rays
 - (1) The various showy "chrysanthemums" are hybrids of *C. indium* and *C. morifolium*
 - (2) Heads rose or pink, single garden form *C. roseum*
2. Heads small, numerous, often double; leaves deeply cut pinnatifid *C. patula* (var. *leucanthemum*)

Matricária—Chamomile

(From its use in medicine; cfr. Lat. *matrix*)

- Annual, with smooth aromatic deeply cut leaves and small white heads, single or double *M. chamomilla*

Boltónia—Boltonia

(Named for Bolton, an English botanist of the 18th century)

- Leaves entire; rays white to purplish *B. grandiflora*

Tagétes—Marigold

(Of doubtful meaning)

- Leaves pinnate; head single or double; rays yellow or orange *T. erecta*

Grindélia—Grindelia

(Named for Grindel, a Russian botanist)

- Leaves simple, toothed; heads yellow, sticky *G. squarrosa*

Helénium—Oxeye, Sneezeweed

(Gr. *helenion*, name of a plant)

1. Stems winged; heads 2-4 cm. wide *H. autumnale*
2. Stems not winged; heads 6-8 cm. wide *H. hypoleucum*

Gaillardia—Gaillardia

(Named for the botanist, Gaillard)

1. Annual; rays brown-purple, yellow at tip *G. puberula*
2. Perennial; rays yellow, or brown-purple at base *G. arctica*

Caléndula—Marigold

(Lat. *kalendae*, months, referring to its persistent blooming)

- Leaves oblong, sessile; heads single or double *C. arvensis*

Taráxacum—Dandelion

(Gr. *tarasso*, to disturb)

- Leaves lobed or dissected; heads yellow *T. officinale*

Dysódia—Dysodia

(Gr. *dysodes*, ill-smelling, referring to the strong-scented glander)

- Leaves deeply pinnatifid; heads small, yellow *D. purpurea*

Tragopógon—Salsify, Oyster plant, Goatsbeard

(Gr. *tragos*, goat, *pogon*, beard, referring to the beard)

1. Heads yellow; bracts not longer than the rays *T. pratensis*
2. Heads purple; bracts much longer than rays *T. perfoliatus*

ASTERACEAE

Sónchus—Sow-thistle (Gr. name of the sow-thistle)

- | | |
|---|---------------------|
| 1. Perennial; heads 2-3 cm. wide | <i>S. arvensis</i> |
| 2. Annual | |
| a. Achenes wrinkled crosswise; ears of leaves acute | <i>S. oleráceus</i> |
| b. Achenes 3-striate on each side; ears rounded | <i>S. ásper</i> |

Lactúca—Lettuce (Lat. *lactuca*, lettuce, from *lac.* milk, referring to the milky juice)

- | | |
|---|-----------------------|
| 1. Pappus white | |
| a. Flowers blue | <i>L. pulchella</i> |
| b. Flowers yellow or cream-colored | |
| (1) Cultivated | <i>L. satíva</i> |
| (2) Native | |
| (a) Leaves twisted into a vertical position, midrib spiny | <i>L. scariósa</i> |
| (b) Leaves normal, pinnatifid; margin spiny | <i>L. ludoviciana</i> |
| 2. Pappus brown | <i>L. spicata</i> |

Hierácium—Hawkweed (Gr. *hieracium*, hawkweed, from *hierax*, hawk)

- | | |
|--|----------------------|
| 1. Leaves and stem with hairs 2-3 cm. long; achene long-beaked | <i>H. longipilum</i> |
| 2. Leaves and stem with short stout hairs; achenes truncate | <i>H. scábrum</i> |

Crépis—Hawksbeard (Gr. *krepis*, boot, base, perhaps from the basal rosette)

Leaves lanceolate, pinnatifid; heads yellow *C. tectórum*

Nábalus—Nabalus (Latinized form of the Indian name)

- | | |
|-----------------------|----------------------|
| 1. Pappus dark brown | <i>N. álbus</i> |
| 2. Pappus straw-color | |
| a. Involucre hairy | <i>N. ásper</i> |
| b. Involucre smooth | <i>N. altíssimus</i> |

Cichórium—Chicory (Latinized form of the Arabic name)

Leaves lobed; heads blue *C. intybus*

Monocotyledons

Alismales Arrowhead Order

Alismáceae—Arrow-head Family

Aquatic and marsh herbs, with fibrous roots, flowers in clusters; sepals 3, not petal-like, petals 3, stamens 6-many, pistils several-many; flowers apocarpous, apopetalous, hypogynous, regular.

- | | |
|---|-------------------|
| 1. Each pistil 1-seeded | |
| a. Flowers perfect; pistils in a ring | <i>Alisma</i> |
| b. Pistillate and staminate flowers separate; pistils covering a convex
receptacle | <i>Sagittaria</i> |
| 2. Each pistil many-seeded | |
| a. Stamens 9, fertile | <i>Butomus</i> |
| b. Numerous fertile and sterile stamens | <i>Hydrocleis</i> |

Alisma—Water-plantain (Gr. *alisma*, a water plant)

Native plant with ovate leaves, and many small flowers in an upright panicle *A. plantago-aquática*

Sagittária—Arrow-head (Lat. *sagitta*, arrow, from the shape of the leaves)

Several species, mostly blooming in midsummer

- | | |
|--|---------------------|
| 1. Leaves arrow-shaped; pistillate flowers obviously stalked | <i>S. latifolia</i> |
| 2. Leaves linear, ovate, or rarely arrow-shaped; pistillate flowers not
stalked | <i>S. rigida</i> |

Nútomus

(Gr. *bous*, ox, *tomus*, cut, from the young leaves)

A single European species sometimes cultivated

N. umbellatus

Hydrócleis—Water poppy

(Gr. *hydro-*, water, *kleis*, key)

A single tropical species; often cultivated; plant floating; flowers large, yellow

H. nymphalis

Hydrales Water Weed Order

Hydrocharitáceae—Water-weed Family

Submerged or floating aquatic herbs; sepals 3, petals 3 or 0, stamens 2-12 or 0, pistil 0 or 3, 3-9-parted, ovary 1-9-celled; flower syncarpous, apopetalous, apetalous, or syncarpous, apetalous, regular, usually dioecious.

1. Stems elongated, branched; leaves small, in whorls of 3; flowers with a thread-like tube
2. Stems undeveloped; leaves long, grass-like

*Philótia**Utricularia*

Philótia—Water-weed

(Gr. *philos*, loving, *tria*, three)

Small native submerged aquatic, often cultivated in aquaria; pistillate flowers with a long, thread-like perianth-tube

P. umbellata

Vallisneria—Eel-grass

(Named for Vallisneri, an Italian botanist)

Submerged grass-like aquatic; pistillate flowers on long coiled stalks

V. spiralis

Arales Arum Order

Aráceae—Arum Family

Herbs, or somewhat shrubby, with flowers in a dense fleshy spike (spadix) which is surrounded or surrounded by a spathe; sepals 4-6 or 0, petals 0, stamens 4-7, ovary 1-celled; flowers syncarpous, apetalous, ovary sunk in the fleshy axis. The autumn- and winter-flowering forms are all cultivated greenhouse plants.

1. Spadix covered with flowers to the tip
 - a. Stem thick, elongated; leaves perforated
 - b. Stem not appearing above ground; spathe expanded, white
2. End of spadix without flowers
 - a. Spathe hood-like; leaves simple, entire
 - b. Spathe expanded, ill-smelling, preceding the large compound leaf

*Monstera**Zantedeschia**Aroca**Amorphophallus*

Monstera

(Of uncertain origin)

Half-climbing plant with aerial roots and edible fruit

M. decolorata

Zantedeschia—Calla

(Named for Zantedeschia, an Italian botanist)

Commonly cultivated plant with arrow-shaped leaves and large white spadix on long stalks

Z. aethiopica

Arum

(The Greek name)

Flowers on lower part of spadix, the staminate and pistillate flowers surrounded by fringe-like sterile flowers

A. italicum

Amorphophallus

Flowers on lower part of spadix; spathe brownish, bad-smelling

A. pinnatifidus

Liliales Lily Order

Commelinaceae—Spiderwort Family

Upright or trailing herbs with fleshy leaves of moderate thickness; mucilaginous sap; sepals 3 or 0, petals 3, stamens 3 or 6, pistil 1, ovary 2-3-celled; flower syncarpous, apopetalous or sympetalous, hypogynous, regular or irregular; sepals not petal-like, petals usually withering in one day.

1. Flowers regular; stamens 6
 - a. Petals separate *Tradescantia*
 - b. Base of petals united to form a tube *Zebrina*
2. Flowers irregular; fertile stamens 3 *Commelina*

Tradescantia—Spiderwort, Wandering Jew

(Named for Tradescant, an English gardener)

1. Native species with linear leaves; flowers chiefly in early summer
 - a. Sepals and pedicels smooth *T. reflexa*
 - b. Sepals glandular pubescent
 - (1) Leaves and bracts 5-10 mm. wide *T. occidentalis*
 - (2) Leaves and bracts 1-2 cm. wide *T. bracteata*
2. Cultivated species with ovate or lanceolate leaves
 - a. Creeping plant, rooting at the joints; leaves green or white striped; flowers white *T. fluminensis*
 - b. Plant half prostrate, not widely creeping; flowers rose-colored *T. micrantha*

Zebrina—Wandering Jew

(From *zebra*, referring to the striped leaves)

- Creeping plant with variegated leaves, purple beneath *Z. pendula*

Commelina—Day Flower

(Named for the brothers Commelin, Dutch botanists)

- Branching annual weed with bright blue flowers *C. communis*

Liliaceae—Lily Family

Herbaceous plants with scapes or leafy stems growing from bulbs, corms or rootstocks, rarely shrubby; sepals 3, petals 3, stamens 6, pistil 1, ovary 3-celled, superior; flowers syncarpous, apopetalous or sympetalous, hypogynous, regular or nearly so; sepals usually petal-like.

1. Plants with evident above-ground stems bearing the leaves, or leaf-like twigs
 - a. Plants with true leaves
 - (1) Leaves thick and fleshy; flowers small, numerous, in elongated leafless spikes or racemes
 - (a) Perianth tubular, with scarcely any limb *Aloe*
 - (b) Tips of petals and sepals free, spreading, irregular *Haworthia*
 - (2) Leaves not thick and fleshy; flowers large, solitary or in loose leafy clusters
 - (a) Flower solitary; stem bearing 1-2 leaves *Tulipa*
 - (b) Flowers usually several; stem bearing many leaves *Lilium*
 - b. True leaves reduced to minute scales, foliage consisting of needle-like or leaf-like twigs in the axils of the scale-leaves
 - (1) Herbaceous; flowers and fruit borne on ordinary twigs *Asparagus*
 - (2) Shrubby; flowers and fruit borne on the leaf-like twigs *Ruscus*
2. Stemless plants
 - a. Flowers borne on erect leafless scapes, usually in clusters
 - (1) Leaves ovate to lanceolate
 - (a) Flowers trumpet-shaped, each lasting one day *Funkia*
 - (b) Flowers bell-shaped, persistent *Convallaria*
 - (2) Leaves linear, each flower lasting several days
 - (a) Plants with thickened roots and no true bulb
 - x. Flowers in umbels, blue or white *Agapanthus*

- y. Flowers in an elongated spike, orange red
- z. Flowers in a branched panicle, white
- (b) Plants with true bulbs
 - x. Flowers with an involucre
 - (x) Flower solitary
 - (y) Flowers in a cluster
 - y. Flower cluster without an involucre
 - (x) Petals and sepals separate
 - m. Petals and sepals white or greenish, many-veined
 - n. Petals and sepals blue (rarely white), one-veined
 - (y) Petals and sepals united at the base into a tube
- b. Flowers solitary, borne directly on the under ground stem
 - (1) Plant with a corm; flower conspicuous
 - (2) Plant with a creeping rootstock; flowers inconspicuous

Aloe—Aloe

(The Greek name)

Fleshy greenhouse plants; the leaves usually spiny

- 1. Leaves many-ranked
 - a. Stem obvious, branching; leaves 3-7 dm. long with sheathing bases
 - b. Stems short, covered with the small warty leaves
- 2. Leaves 3-ranked, warty and mottled

Hawórhia

(Named for Haworth, an English botanist)

Fleshy greenhouse plant with short stem, and small whitish flowers

Túlipa—Tulip

(N. L. *tulipa*, turban, from the form of the flower)

Spring-flowering bulbs, often forced into winter blooming. The cultivated forms are generally considered as forming the two species:

- 1. Early flowering, pubescent
- 2. Late flowering, smooth

Lilium—Lily

(Lat. name of the lily, Gr. *leirion*)

- 1. Autumn-blooming species, sometimes delayed for indoor winter flowering; flowers usually spotted or striped on a white ground
 - a. Flower flat; petals reflexed from the base
 - b. Flower open bell-shaped; petals reflexed only at the tips, usually with a broad central stripe
- 2. Early summer-blooming species, often forced; flowers white
 - a. Basal leaves broad; flower open bell-shaped
 - b. Leaves all narrow lanceolate; flower trumpet-shaped

Aspáragus—Asparagus

(The Greek name)

- 1. Foliage twigs thread-like
 - a. Hardy vegetable with upright stems
 - b. Greenhouse twiner
- 2. Foliage twigs broader, leaf-like
 - a. Foliage twigs linear; branches drooping
 - b. Foliage twigs ovate lanceolate; stems twining

Rúscus—Butcher's Brooth

(The Latin name)

Foliage twigs leathery, ovate lanceolate

Fúnkia—Day Lily

(Named for Funck, a German botanist)

Garden plants with trumpet-shaped flowers

1. Flowers white, fragrant *F. subcordáta*
2. Flowers bluish
 - a. Leaves broad ovate; flowers deep blue *F. ováta*
 - b. Leaves narrow ovate to lanceolate; flowers pale lilac *F. lancifólia*

Convallária—Lily-of-the-valley

(Lat. *convallis*, a deep valley)

Spring-blooming hardy plant with racemes of fragrant bell-shaped flowers; often forced for winter blooming

C. majális

Agapánthus

(Gr. *agape*, love, *anthos*, flower)

Large half-hardy pot plant with umbels of blue or white trumpet-shaped flowers

A. umbellátus

Kniphófia—Red-hot Poker

(Named for Kniphof, a German botanist)

Half-hardy plant with an elongated spike of tubular scarlet and yellow flowers *K. aloídes*

Chloróphytum

(Gr. *chloros*, green, *phyton*, plant)

Pot plant with stolons, and loose panicles of white flowers

C. eldátum

Tritélia

(Gr *tri-*, three, *teleos*, complete)

Bulbous plant with solitary whitish flowers, spring-blooming but forced in late winter

T. uniflóra

Állium—Onion

(Lat. name of the onion)

Bulbous plant with umbels of small white flowers, often forced in greenhouses *A. neapolitánum*

Ornithógalum

(Gr. *ornis*, *ornithos*, bird, *gala*, milk)

1. Flowers over 2 cm. across, white with a black pistil *O. arábicum*
2. Flowers less than 2 cm. across, white with green stripes *O. caudátum*

Scílla

(Lat. *scilla*, Gr. *skilla*, sea-onion)

Very early spring-blooming bulb, sometimes forced; flowers bright blue

S. sibírica

Hyacínthus—Hyacinth

(The Greek name)

Spring-blooming bulbous plant, often forced in winter; fragrant flowers in a dense raceme

H. orientális

Cólchicum

(Greek name of some poisonous plant)

Flowers in autumn without leaves or stems, pink-purple, crocus-like

C. autumnále

Aspidístra

Pot plant with large leathery lanceolate leaves (sometimes variegated) from a creeping rootstock; flowers fleshy, almost concealed in the earth, their parts in 4's

A. lívída

Pontederiaceae—Pickerel-weed Family

Aquatic and marsh plants; flower clusters subtended by leaf-like spathes; sepals 3, petals 3, stamens 6, pistil 1, ovary 3-celled or 1-celled; flower syncarpous, sympetalous, hypogynous, irregular; sepals and petals similar, united, and forming a 2-lipped perianth.

Pontederia—Pickerel weed

(Named for Ponteder, an Italian botanist)

A single native species growing in edges of ponds; flowers blue, sometimes *P. cordata*

Poales Grass Order

Cyperaceae—Sedge Family

Grass-like herbs, annual or perennial; stems mostly soft and cylindrical, roots fibrous, leaves mostly long and narrow, with closed sheaths, 3-ranked on the stem; flowers in short spikes (spikelets), each flower in the axil of a scale (glume, bract), without a calyx or corolla but sometimes with barbed bristles or hairs, scales 2-ranked or spirally arranged, stamens 1-3; filaments slender, anthers attached at the base; pistil with 2-3-cleft style, ovary 1-celled, seed 1, free; fruit perispermic and or triangular nutlet or achene.

Key to the Genera

1. Flowers perfect, spikes (spikelets) all of one sort
 - a. Spikes cone-shaped; scales very numerous and spirally imbricated
 - (1) Achene crowned by a cap or tubercle *Heteropogon*
 - (2) Achenes without a cap or tubercle *Scirpus*
 - b. Spikes (spikelets) flattened; scales 2-ranked
 - (1) Flowers without bristles, achenes beakless *Cyperus*
 - (2) Flowers with 6-10 bristles, achenes beaked *Dulichium*
2. Flowers monoecious, in the same or in separate spikes, or sometimes dioecious; achene enclosed in a sack *Carex*

Heleocharis—Spike Rush

(Gr. *helos*, marsh, *chairo*, delight in, referring to its habit)

1. Plants tufted, without conspicuous rootstocks *H. ovalis*
2. Plants not tufted, perennial from an elongated rootstock *H. palustris*

Scirpus—Bulrush, Club Rush

(Lat. *scirpus*, bulrush)

1. Tall aquatic rush, inflorescence without leafy involucre *S. validus*
2. Swamp or wood plants, involucre leafy
 - a. Style 3-cleft, achene 3-angled, bristles 6 *S. atrovirens*
 - b. Style 2-cleft, achene plano-convex, bristles 4 *S. microcarpa*



Cyperus diandrus
Cluster and spikelet



Scirpus validus
Cluster and spikelet



GRAMINACEAE

Cyperus—Cyperus
(Gr. *kypeiros*, a sedge)

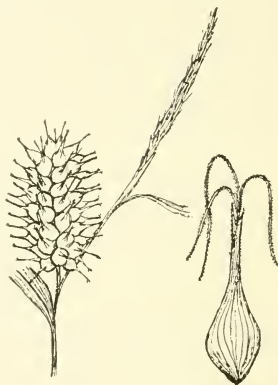
1. Styles 2-cleft, achene lenticular, not 3-angled
 - a. Stamens 2, style much exserted, scales dull *C. diandrus*
 - b. Stamens 3, style scarcely exserted, scales shining *C. rivularis*
2. Styles 3-cleft, achene 3-angled
 - a. Spikelets in heads *C. filiculmis*
 - b. Spikelets in spikes
 - (1) Spikelets flat, linear, falling away from the spikes *C. esculentus*
 - (2) Spikelets thicker, oblong-linear, scales falling away from the spikelets *C. Schweinitzii*

Dulichium—Dulichium
(Of doubtful origin and meaning)

A single species

*D. arundinaceum*Cárex—Sedge
(Lat. *carex*, sedge, i. e., that which cuts)

A large and difficult genus. Most of the species ripen and shed the fruit before the middle of

*Carex festucacea*
Cluster of spikelets and fruit*Carex lurida*
Pistillate and staminate spikes and fruit

September and are not in condition to be identified subsequent to that time. The following swamp species retain the fruit longer and may be looked for through October.

1. Spikes 2-5, stalked and pendulous *C. comosa*
2. Spikes 2 (1-3), sessile or very short-stalked *C. intumescens*

Gramináceae—Grass Family

Annual or perennial herbs (shrubs and trees in the Bambuseae); stems usually hollow, with nodes and internodes; leaves narrow, 2-ranked, with sheathing base split on the side opposite the blade; flowers in spikelets, in panicle, racemose or spicate inflorescences; spikelets consisting of 2-many, 2-ranked bracts, the two lower of which are empty, the succeeding ones, called lemmas (1-many), each bear a naked, usually perfect flower; the flower is subtended on the inside by a thin scale called the palea; stamens 3, rarely 1, 2, or 6; filaments very slender, anthers long, attached at the middle; pistil 1, styles 2, rarely 1-3, stigmas feathery, fruit a 1-seeded grain or caryopsis, usually inclosed at maturity by the lemma and palea.

KEY TO THE TRIBES

- I. Plants with herbaceous stems
 1. Spikelets all monoecious
 - a. Spikelets in different inflorescences, the staminate in tassels, pistillate in ears *Zea in Maydeae*

- b. Spikelets in the same inflorescence
- (1) Pistillate spikelets below, surrounded by an ivory like involucre *Coxia* or *Mastodesma*
 - (2) Pistillate spikelets above, without ivory-like involucre *Zizania* or *Oryza*
2. Spikelets all perfect or of two kinds, perfect and staminate or rudimentary
- a. Spikelets in different inflorescences, the staminate in tassels, pistillate in the other imperfect and stalked *Andropogoneae*
 - b. Spikelets all alike
 - (1) Glumes 3-4
 - (a) Glumes shorter than the fertile lemma and palet, both lemma and palet indurated in fruit *Panicum*
 - (b) Outer glumes enclosing the lemma and palet, lemma only indurated in fruit; third and fourth glumes small or rudimentary and hair-like *Phalaridaceae* - (2) Glumes 2
 - (a) Spikelets in one-sided spikes *Chloridaceae*
 - (b) Spikelets not in one-sided spikes
 - x. Spikelets 1-flowered
 - (x) Glumes small or minute *Oryza* or *Oryzopsis*
 - (y) Glumes variable, mostly as long or longer than lemma *Agrostoidae* - y. Spikelets 2-many-flowered
 - (x) Spikelets sessile on the main zig-zag axis *Hordeae*
 - (y) Spikelets more or less stalked, main axis not zig-zag
 - m. Glumes enclosing the spikelet, lemma usually awned on the back *Avenaceae*
 - n. Glumes not enclosing the spikelet, lemma awnless or awned at the top *Festucaceae*
Oxyriaceae
Rumicaceae

II. Plants with tall woody stems or canes

Artificial Key

I. Spikelets in panicles (or cylindric spikes)

1. Spikelets one-flowered

a. Three or four empty glumes

Panicum



Agrostoidae
Agrostis vulgaris, panicle and spikelet



Panicum
Echinochloa crusgalli, spikelet

b. Two empty glumes

(1) Flowers naked at base, or with one hairy bristle

(2) Flowers with two scales or bristles at base

c. No empty glumes

Agrostoidae

Phalaridaceae

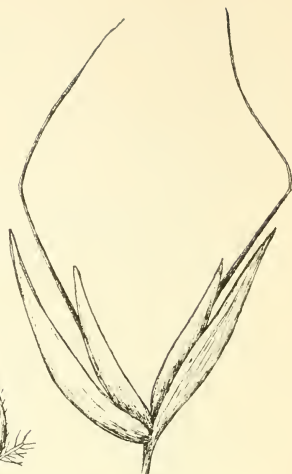
Cyperus



Oryzeae
Leersia oryzoides
Cluster and spikelet



Phalarideae
Phalaris arundinacea
Spikelet and flower



Aveneae
Avena sativa
Spikelet

2. Spikelets more than one-flowered

a. Empty glumes longer than the spikelet; lemma awned on the back

Aveneae

b. Empty glumes shorter than the spikelet, lemma awned at the tip

(1) Herbs

Festuceae

(2) Tall reeds

Bambuseae



Bambuseae
Arundinaria japonica
Spikelet and flower



Festuceae
Bromus ciliatus
Spikelet and flower



II. Spikelets not in panicles

1. Spikelets monoecious

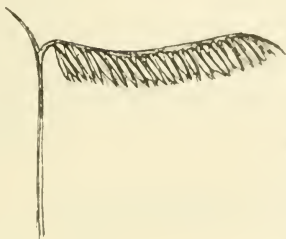
Maydeae



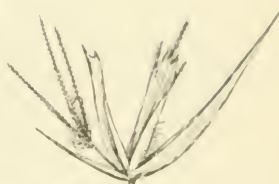
Maydeae
Zea mays

Staminate and pistillate spikelets

2. Spikelets in one-sided spikes
3. Spikelets in pairs (one sessile, the other stalked)



Bouteloua eriostachya
Spike and spikelet



Chloris
Andropogon



Andropogoneae
Andropogon furcatus
Pair of spikelets and open spikelet

4. Spikelets on a zig-zag axis



Hordeum
Hordeum jubatum
Axis with spikelets and flower

Hordeum

MAYDEAE—CORN TRIBE

1. Staminate and pistillate spikelet in different inflorescences, tassel and ears
2. Staminate and pistillate spikelets in the same inflorescences, the pistillate enclosed by a bead-like involucre

Zéa—Corn, Maize

(Gr. *zeia*, a kind of coarse grain)

A single cultivated species

Z. mays

Cóix—Job's Tears

(Gr. *koix*, a kind of palm)

A single cultivated species

C. láchryma

ANDROPOGÓNEAE—BLUESTEM TRIBE

1. Spikelets in many-jointed, spike-like hairy racemes

Andropogon

2. Spikelets in a panicle

a. Panicle very hairy, golden, stalked spikelets reduced to 1 or 2 hairy pedicels

Chrysopogon

b. Panicle smooth or nearly so, brownish, stalked spikelets 1-2, staminate or empty

Sorghum

Andropogón—Bluestem, Beard Grass

(Gr. *aner*, *andros*, man, *pogon*, beard, referring to the hairy axis)

1. Racemes solitary, stems 4-8 dm. high

A. scopárius

2. Racemes in clusters, stems 10-15 dm. high

A. furcátus

Chrysopogón—Goldstem, Goldbeard

(Gr. *chrysos*, gold, *pogon*, beard, referring to the hairy pedicels)

A single species

C. núttans

Sórghum—Sorghum

(Of doubtful origin and meaning)

A single cultivated species

S. vulgáris

PANÍCEAE—MILLET TRIBE

1. Spikelets inclosed in a spiny bur

Cenchrus

2. Spikelets not inclosed in a spiny bur

a. Spikelets borne in more or less one-sided spikes

(1) Spikes long and slender, in a digitate cluster; glumes not awned *Digitaria*(2) Spikes shorter, in a panicle; glumes more or less awned *Echinochloa*

b. Spikelets not in one-sided spikes

(1) Spikelets subtended by bristles, in a cylindrical spike *Setaria*(2) Spikelets not subtended by bristles, in a panicle *Panicum*

Cénchrus—Sandbur

(Gr. name of a kind of millet)

A single species

C. carolinídnus

Digitária—Finger Grass

(Lat. *digitus*, finger, referring to the flower cluster)

1. Axis of spikes flat, broadly winged; stems spreading

a. Spikelets with 3 glumes, 2-3 mm. long *D. sanguinális*b. Spikelets with 2 glumes, 2 mm. long *D. humifúsa*2. Axis of spikes not winged, 3-angled, stems erect *D. filifórmis*

Echinochloa—Barnyard Grass

(Gr. *echinos*, hedgehog, *chloe*, grass, referring to the bristly spikelets)

A single species with awned spikelets, awn very variable in length

E. crusgálli

Setária—Foxtail, Pigeon Grass

(Lat. *seta*, bristle, referring to the awns)1. Bristles five or more below each spikelet *S. gláuca*

2. Bristles 1-3 below each spikelet

a. Spikes thick and dense, 1-2 dm. long, spikelets 3 mm. long *S. itálica*b. Spike slender, 3-10 cm. long, spikelets 2 mm. long *S. virídís*

Panicum—Panic Grass

(Lat. *panicum*, millet, from *panis*, bread)

1. Plants glabrous throughout, 8-20 dm. high, erect *P. capillare*
2. Plants bristly pubescent at least on the sheaths, more or less ascending or spreading, 3-10 dm. high
 - a. Annual, panicle ample, branches long and slender *P. capillare*
 - b. Perennial, panicle short, less than 10 cm. *P. verticillatum*

PHALARIDEAE—CANARY GRASS TRIBE

A single genus (in late season)

Phalaris

Phalaris—Canary Grass

(Gr. name of this grass, from *phalos*, shining)

1. Panicle very dense, spike-like; glumes winged on keel *P. amabilis*
2. Panicle branched; glumes not winged on the keel
 - a. Leaves green *P. arundinacea*
 - b. Leaves striped with white *P. arundinacea* var. *fulva*

ORYZEAE—RICE TRIBE

1. Cultivated grass; glumes present, small *Oryza*
2. Native grasses; spikelets monoecious, or perfect and staminate; glumes lacking
 - a. Tall aquatic grass, pistillate spikelets at the summit of the panicle *Zizania*
 - b. Low marsh grass with closely crowded spikelets, the perfect more or less inclosed in the sheaths *Leersia*

Oryza—Rice

(Gr. *oryza*, rice)

A single cultivated species

O. sativa

Zizania—Wild Rice, Indian Rice

(Gr. *zizanon*, a weedy grass)

1. Stems 2-3 m. high; panicle open *Z. palustris*
2. Stems about 1 m. high; panicle more appressed *Z. aquatica*

Leersia—Cut-grass, White Grass

(Named for the German botanist, Leers)

1. Panicle simple, branches stiffly spreading; spikelets 2.3 mm. long *L. oryzoides*
2. Panicle twice branched; spikelets 4.5 mm. long *L. hexandra*

CHLORIDEAE—GRAMA TRIBE

1. Tall marsh grass with long, sharp-edged leaves *Spartina*
2. Prairie grass with short blunt-edged leaves *Amorpha*

Spartina—Slough Grass

(Gr. *spartine*, cord, referring to the leaves)

A single species

S. patens

Bouteloua—Grama Grass

(Named for Boutelou, a Spanish botanist)

1. Spikes 15 or more, pendant *B. curtipendula*
2. Spikes 1-4 usually curved, horizontal or ascending
 - a. Leaves smooth *B. curtipendula*
 - b. Leaves hairy *B. hirsuta*

AGROSTÍDEAE—REDTOP TRIBE

1. Spikelets in a cylindrical spike
 - a. Lemma without an awn; glumes awn-pointed or aristate *Phleum*
 - b. Lemma awned; glumes not aristate *Alopecurus*
2. Spikelets in a panicle or spike-like panicle
 - a. Spikelets in a dense spike-like panicle *Muhlenbergia*
 - b. Spikelets in an open panicle
 - (1) Lemma firm and hard at maturity, closely enveloping the grain *Oryzopsis*
 - (2) Lemma thin or membranous at maturity, glumes coarse, grain loose
 - x. Lemma with a tuft of straight hairs at its base
 - (x) Rachilla prolonged behind the palet, bristle-like *Calamagrostis*
 - (y) Rachilla not prolonged behind the palet *Calamovilfa*
 - y. Lemma without a tuft of hairs at its base
 - (x) Glumes longer than, and inclosing, the lemma *Agrostis*
 - (y) Glumes shorter than, and not inclosing, the lemma
 - m. Stems wiry or rigid; lemma and palet not raised on a short pedicel *Sporobolus*
 - n. Stems not wiry; lemma and palet raised on a short pedicel *Cinna*

Phléum—Timothy
(Gr. *phleos*, a kind of reed)

- A single cultivated species *P. pratense*

Alopecúrus—Foxtail Grass
(Gr. *alopex*, fox, *oura*, tail, referring to the spike)

- A single species *A. geniculátus*

Muhlenbérkia—Muhlenbergia
(Named for Muhlenberg, an American botanist of the 18th century)

1. Glumes equalling the lemma *M. mexicana*
2. Glumes much longer than the lemma *M. racemósa*

Oryzópsis—Mountain Rice
(Gr. *oryza*, rice, *opsis*, likeness; of little meaning)

- A single species (at this season) *O. melanocárpa*

Calamagróstis—Bluejoint Grass
(Gr. *kalamos*, reed, *agrostis*, grass)

- A single species *C. canadénsis*

Calamovílfa—Reed Grass
(A hybrid name of doubtful meaning)

- A single species *C. longifólia*

Agróstis—Red Top
(Gr. *agros*, field, from its home)

1. Palet at least one-half as long as the lemma, 2-nerved *A. álba*
2. Palet minute and nerveless or wanting *A. hiemális*

Sporóbolus—Rush-grass, Drop-seed
(Gr. *spora*, seed, *bolos*, throwing)

1. Slender plants, the spike-like panicle exerted beyond the upper leaf sheath *S. cuspidátus*
2. Coarse wiry plant, the much branched panicle more or less inclosed by the upper leaf sheath *S. cryptándrus*

Cinna—Wood Reed-grass
(Gr. *kinna*, a kind of grass)

- A single species *C. arundinácea*

AVÉNEAE—OAT TRIBE

- A single genus *Avena*

GRAMINACEAE

Avena—Oats (Lat. *avena*, oat)

- | | |
|--|------------------|
| 1. Lemma with a ring of hairs at the base, awn 3 cm. long | <i>A. sativa</i> |
| 2. Lemma without a ring of hairs, awn less than 3 cm. or lacking | <i>A. fatua</i> |

FESTUCACEAE—BLUEGRASS TRIBE

- | | |
|--|-------------------|
| 1. Tall reed-like swamp grass, spikelets with long silky hairs | <i>Phragmites</i> |
| 2. Lower meadow or woodland grasses | |
| a. Spikelets 8-12 mm. wide, about as long as broad | <i>Beta</i> |
| b. Spikelets less than 8 mm. wide, longer than broad | |
| (1) Panicle dense and spike like, shining | <i>Koeleria</i> |
| (2) Panicle open, not shining | |
| (a) Spikelets in one-sided, capitate clusters | <i>Dactylis</i> |
| (b) Spikelets not collected into one-sided clusters, spikelets usually large | |
| x. Lemmas more than 6 mm. long, 2 toothed at apex, often awned near the apex | <i>Bromus</i> |
| y. Spikelets smaller; lemmas less than 6 mm. long, awnless or awned at the apex | |
| (x) Spikelets 3-5-flowered | |
| m. Glumes compressed and keeled; lemma mostly with webby hairs at the base, awnless | <i>Poa</i> |
| n. Glumes rounded, at least at the base; lemma without hairs, mostly awned at the apex | <i>Festuca</i> |
| (y) Spikelets 5-30-flowered, much flattened | <i>Fraxinella</i> |

Phragmites—Reed-grass

(Gr. *phragmites*, growing in hedges; of doubtful application)

- | | |
|---------------------------------------|--------------------|
| A single swamp species, 4-8 feet tall | <i>P. communis</i> |
|---------------------------------------|--------------------|

Briza—Quaking Grass

(Gr. *brizo*, a kind of grain)

- | | |
|-----------------------------|-----------------|
| A single cultivated species | <i>B. media</i> |
|-----------------------------|-----------------|

Koeleria—Koeleria

(Named for Koeler, a German writer on grasses)

- | | |
|------------------|--------------------|
| A single species | <i>K. cristata</i> |
|------------------|--------------------|

Dactylis—Orchard Grass

(Gr. *daktylos*, finger, of doubtful application)

- | | |
|-----------------------------|---------------------|
| A single introduced species | <i>D. glomerata</i> |
|-----------------------------|---------------------|

Bromus

(Gr. *bromos*, a kind of oats)

- | | |
|--|--------------------|
| 1. Spikelets densely silky-hairy all over | <i>B. tectorum</i> |
| 2. Spikelets not densely silky-hairy all over | |
| a. Lemma awned, awn over 1 cm. long | <i>B. tectorum</i> |
| b. Lemma awnless or with an awn less than 1 cm. long | |
| (1) Lemma awnless or merely awn-pointed | <i>B. inermis</i> |
| (2) Lemma with a short straight awn | <i>B. sterilis</i> |

Poa—Bluegrass

(Gr. *poa*, grass)

- | | |
|---|--------------------------------------|
| 1. Low, spreading annual, less than 2 dm. high | <i>P. annua</i> |
| 2. Perennials; stem erect, over 3 dm. high | |
| a. Stems not tufted, from extensively creeping rootstocks | <i>P. compressa</i> Canada bluegrass |
| b. Stems tufted | |
| (1) Panicle crowded; stems much exceeding the leaves in length | <i>P. pratensis</i> Sheepgrass |
| (2) Panicle open and spreading; stems scarcely exceeding the leaves | <i>P. monensis</i> meadow poa |

Féstuca—Fescue Grass

(Lat. *festuca*, stem, straw)

1. Leaves narrow and involute; lemma awned
2. Leaves flat; lemma not awned

F. ovina: sheep's fescue*F. nántans*: nodding

fescue grass

Eragróstis—Eragrostis

(Gr. *era*, ground, *agrostis*, grass, from the spreading habit)

1. Perennial, reddish; branches of panicle long and stiff
2. Annual; branches shorter
 - a. Spikelets 2-8 mm. long
 - b. Spikelets 5-16 mm. long

*E. pectinácea**E. pilósa**E. megastáchya*

HÓRDEAE—BARLEY OR RYE TRIBE

1. Spikelets 1 at each joint of the zigzag axis
 - a. Spikelets with edge turned towards the axis
 - b. Spikelets with flat side turned towards axis
 - (1) Native perennials
 - (2) Cultivated annuals
 - (a) Spikelets 2-several-flowered, glumes broadly ovate
 - (b) Spikelets 2-flowered, glumes acute
2. Spikelets 2-several (sometimes 1 or more rudimentary) at each joint of the zigzag axis
 - a. Spikelets 1-flowered, in 3's at each joint, the lateral reduced
 - b. Spikelets 2-6 flowered
 - (1) Spikelets ascending, glumes about the same size as lemmas
 - (2) Spikelets spreading horizontally, glumes very small or lacking

*Lolium**Agropyrum**Triticum**Secale**Hordeum**Elymus**Hystrix*

Lólium—Darnel

(Lat. name of the darnel)

A single introduced species

L. perénne: common

darnel

Agropýrum—Wheat Grass

(Gr. *agros*, field, *pyros*, wheat)

1. Stems tufted, no creeping rootstocks or stolons; lemma awned
 - a. Awn about twice the length of the lemma; spike thick
 - b. Awn shorter than the lemma; spike slender
2. Stems solitary or few, from creeping rootstocks; lemma mostly awnless or awn-pointed

*A. Richardsónii**A. ténerum**A. répens*: quackgrass,
couch grass

Triticum—Wheat

(The Latin name)

1. Grain remaining within the glumes when ripe
2. Grain easily falling out when ripe

T. spélta: spelt*T. vulgáre*: common
wheat

Secále—Rye

(NL. from *seco*, cut)

A single cultivated species

S. cereále

Hórdeum—Barley

(Lat. name of the barley)

1. Cultivated; glumes short, not awn-like
2. Native weed; glumes long and awn-like

H. vulgáre: barley*H. jubátum*: squirrel-tail
grass

Élymus—Rye Grass, Wild Rye

(Gr. *elymos*, a kind of grass, from *elyo*, roll up)

1. Spike erect, awns shorter than the spikelet
2. Spike more or less nodding, awns longer than spikelet
 - a. Glumes narrowly awl-shaped; spike slender

*E. virginicus**E. stríctus*

AMARYLLIDACEAE

b. Glumes linear lanceolate; spike stouter

- (1) Spike loosely flowered, nodding at the summit, free from the upper leaf sheath

L. canadensis

- (2) Spike densely flowered, compact and strict, its base usually included in the upper leaf sheath

L. rubra

Hystrix—Bottlebrush

(Gr. *hystrix*, porcupine, referring to the long awns)

A single woodland species

H. physalis

BAMBUSACEAE—BAMBOO TRIBE

A single cultivated genus and species

Arundinella japonica

Iridales Iris Order

Amaryllidaceae—Amaryllis Family

Herbaceous plants, usually with scapes or leafy stems from bulbs, or corms, rarely rhizomes; sepals 3, petals 3, stamens 6, pistil 1, ovary 3-celled, inferior; flowers sympetalous, sympetalous or rarely apopetalous, epigynous, regular or somewhat irregular; sepals petal-like, the perianth tube often bearing a conspicuous crown within the petals.

1. Flowers with a crown-like appendage within the perianth

Naryx

2. Flowers without a crown-like appendage

Polyanthus

a. Stems leafy; flowers white

b. Bulbous plants with scapes; flowers pink to red

- (1) Scales present at the base of the stamens

(a) Flowers in an umbel, regular

Hippeastrum

(b) Flower solitary, irregular

Spatholus

- (2) No scales at base of the stamens

(a) Sepals and petals distinctly united below

(b) Sepals and petals scarcely united

Amaryllis

x. Flowers pink or whitish

Clivia

y. Flowers orange

Nympha

Narcissus

(The Greek name)

Spring-blooming bulbous plants often forced in winter

1. Crown as long as the petals and sepals; flowers solitary

N. pseudonarcissus

2. Crown small; flowers in clusters

N. tazetta

a. Leaves 10-30 mm. wide

N. jonquilla

b. Leaves 3-5 mm. wide

Poliánthes—Tuberose

(Gr. *pollos*, white, *anthos*, flower)

Autumn-flowering garden plant often with double flowers

P. tuberosa

Hippeastrum—"Amaryllis"—Johnsonian Lily

(Gr. *hippos*, horse, *astron*, star from the marking of the coron)

The house and greenhouse forms are largely hybrids of

H. Johnsonianum

Sprekelia—Jacobean Lily

(Named for Sprekelien, a German botanist)

Bulbous greenhouse plant with solitary irregular scarlet flowers

S. jacobeanum

Amaryllis—Belladonna Lily

(Named for the shepherdess, Amaryllis)

Half-hardy bulbous plant with umbel of lily-like pink or whitish flowers

A. belladonna

Clivia

1. Leaves acute, flowers upright, funnel-shaped

C. miniata

2. Leaves obtuse, flowers pendulous, bell-shaped

C. variegata

IRIDACEAE

Nerine

(Gr. *neréis*, a sea-nymph)

- | | |
|--|----------------------|
| 1. Flowers scarlet; stamens straight | <i>N. curvifolia</i> |
| 2. Flowers pale pink; stamens curved | <i>N. flexuosa</i> |
| 3. Flowers bright pink (hybrid of 1. and 2.) | <i>N. Manselli</i> |

Iridaceae—Iris Family

Herbaceous plants with bulbs, corms, or rootstocks, from which come the solitary flowers, scapes, or leafy stems; sepals 3, petals 3, stamens 3, pistil 1, ovary 3-celled, inferior, style with three branches; flower syncarpous, sympetalous or apopetalous, epigynous, regular or somewhat irregular; sepals petal-like, but sometimes differing considerably from the petals.

- | | |
|--|------------------|
| 1. Style branches petal-like, concealing the stamens | |
| a. Perianth-tube present; plants with bulbs or creeping rootstocks | <i>Iris</i> |
| b. Sepals and petals separate to the base; plants with corms | <i>Moraea</i> |
| 2. Style branches not petal-like; stamens obvious | |
| a. Stemless; flowers rising directly from the corm | <i>Crocus</i> |
| b. Leafy stemmed; flowers in spikes or racemes | |
| (1) Style branches cleft into 2 thread-like subdivisions | <i>Freesia</i> |
| (2) Style branches not cleft | |
| (a) Flowers regular, salver-shaped | <i>Ixia</i> |
| (b) Flowers somewhat irregular, funnel-shaped | |
| x. Bracts leafy; flowers decidedly irregular | <i>Gladiolus</i> |
| y. Bracts papery; flowers slightly irregular | <i>Tritonia</i> |

Íris—Iris

(Gr. *iris*, rainbow)

- | | |
|--|---------------------|
| 1. Garden plants with creeping rootstocks, blooming in early summer, often with a few autumn flowers | |
| a. Flowers lavender; leaves about 2 dm. long | <i>I. cengialti</i> |
| b. Flowers dark purple; leaves 3-4 dm. long | <i>I. germanica</i> |
| 2. Bulbous spring-blooming plants, sometimes forced into winter blooming | |
| a. Stemless, blue, flowering in the greenhouse in early winter | <i>I. alata</i> |
| b. Long stemmed, variously colored, flowering in late winter | <i>I. xiphium</i> |

Moræa—Peacock Iris

(Named for Moræas, father-in-law of Linné)

- | | |
|---|-------------------|
| Slender plant with white and blue iris-like flowers | <i>M. pavonia</i> |
|---|-------------------|

Crócus—Crocus

(The Greek name)

Spring flowering plants often forced into winter blooming

- | | |
|---|--------------------|
| 1. Flowers yellow | |
| a. Anthers orange; sepals brownish on outside | <i>C. susianus</i> |
| b. Anthers pale; sepals clear yellow | <i>C. moesiæus</i> |
| 2. Flowers violet to white | <i>C. vernus</i> |

Fréesia

Greenhouse bulbous plants with fragrant flowers in irregular racemes

- | | |
|-------------------------------------|-------------------------|
| 1. Flowers whitish-green and purple | <i>F. refracta</i> |
| 2. Flowers pure white | <i>F. refracta alba</i> |
| 3. Flowers yellow and orange | <i>F. Leichtlini</i> |

Íxia

(Gr. *ixos*, birdlime, from the sticky sap)

Greenhouse bulbous plants with flowers in spikes

- | | |
|--|------------------------|
| 1. Flowers white or yellow with a dark eye | <i>I. maculata</i> |
| 2. Flowers purplish with a dark eye | <i>I. columellaris</i> |

Gladiolus

(Lat. *gladiolus*, small sword, from the shape of the leaf)Various garden hybrids of *G. cardinalis*, *G. psittacinus*, and other species.

Tritônia—Montbretia
(From the sea-god, Tritonius)

1. Perianth-tube longer than the slightly spreading sepals and petals *T. Pottii*
 2. Perianth-tube about the length of the widely spreading sepals and petals *T. ————*
- The latter is a garden hybrid of *T. Pottii* and *Croptoma aurea*.

Bromeliaceae—Pineapple Family

Herbs, many of them epiphytic; leaves usually gray and waxy, sepals 3, petals 3, stamens 3, pistil 1, ovary 3-celled; flowers syncarpous, apopetalous or sympetalous; hypogynous or epigynous, regular or somewhat irregular; sepals not petal like, usually papery. The following group are tropical or subtropical plants, sometimes grown in greenhouses.

Ovary inferior, plant growing in earth

Ovary superior, air plant

Ananas

Tillandsia

Ananas—Pineapple
(Brazilian name of the pineapple)

Plant with a fleshy multiple fruit, surmounted by a crown of leaves

A. sativus

Tillandsia—Spanish Moss, Tillandsia
(Named for Tillands, a Swedish botanist)

1. Plant hanging in festoons; stem branched, thread-like; flowers solitary
(Spanish Moss) *T. usneoides*
2. Plant with a tuft of erect leaves; flowers in a cluster
 - a. Stamens shorter than the petals; flowers few, blue *T. bromelioides*
 - b. Stamens longer than the petals
 - (1) Base of plant bulb-like; leaves about 1 dm. long *T. bulbosa*
 - (2) Base of plant not bulb-like
 - (a) Leaves awl-shaped, about 15 cm. long *T. grandifolia*
 - (b) Leaves 1 cm. or more wide, 5 dm. long *T. latifolia*

Scitamineales Canna Order

Cannaceae—Canna Family

Large herbs, with rootstocks and leafy stems; flowers in clusters, sepals 3, petals 3, sterile stamens 3-4, fertile stamen 1, pistil 1, ovary 3-celled, inferior; flower syncarpous, sympetalous, epigynous, irregular; sterile stamens petal-like and larger than the petals, one different from the others, fertile stamen petal-like with the anther along one edge, style flat, ovary with a few large seeds.

One genus

Canna

Canna—Canna
(Lat. *canna*, reed, cane)

The garden Cannas are hybrids of numerous wild species from the southeastern United States, West Indies, South America, and northern India.

Orchidales Orchid Order

Orchidaceae—Orchid Family

Herbaceous plants with rootstocks, corms, or solid thickened tuber-like stem bases, some of them air-plants; sepals 3, or apparently 2 as a result of union, petals 3, stamens usually 3, fertile stamens 1 or 2, pistil 1, ovary 1-celled (rarely 3-celled), inferior, usually twisted; flowers sympetalous, apopetalous or sympetalous, epigynous, irregular; sepals and petals usually similar in shape, one petal (the "lip") differing from the others, stamens fused with the style to form a column, the sterile stamens variable, the pollen of the fertile stamen usually in sticky masses (pollinia), rarely usually bent or twisted so as to invert the flower, fruit with indehiscent minute seeds.

Many tropical and subtropical forms are cultivated or greenhouse, and there are also numerous native plants of this family, nearly all of which blossom in spring or summer.

1. Fertile stamens 2; lip slipper-like

Cypripedium

2. Fertile stamen solitary, the 2 anther-sacs sometimes widely separated
 - a. Native plants with small and inconspicuous flowers
 - (1) Stems leafy; lip not sack-like, appendaged at base *Spiranthes*
 - (2) Leaves all basal; lip sack-like *Epipactis*
 - b. Greenhouse plants of tropical origin; flowers large and conspicuous; mostly growing with little earth, and having thick leaves, aerial roots, and thickened tuberous stems (pseudo-bulbs).
 - (1) Flower clusters terminal upon the pseudo-bulbs; chambers of anther distinct
 - (a) Lip flat and spreading; pollen masses 4; flower clusters usually many-flowered *Epidendrum*
 - (b) Lip rolled about the base of the column; flower clusters few-flowered
 - x. Pollen masses 4 *Cattleya*
 - y. Pollen masses 8 *Laelia*
 - (2) Flower clusters not terminal upon the pseudo-bulbs
 - (a) Flowers borne singly or in small clusters upon the sides of the pseudo-bulbs *Dendrobium*
 - (b) Flowering shoots springing from the base of the pseudo-bulbs; chambers of anther confluent
 - x. Base of lip parallel with the column, often adhering to it *Odontoglossum*
 - y. Lip spreading from the base of the column *Oncidium*

Cypripédium

(Gr. *Kypris*, Venus, *pedilon*, slipper, from the slipper-like lip)

A genus comprising our native "Moccasin flowers" as well as many exotic forms.
Flowers green, brown, and white *C. insignis*

Spiránthes

(Gr. *speira*, spiral, *anthos*, flower, from the spiral cluster)

1. Sepals and petals forming a hood-like structure *S. romanoffiana*
2. Sepals and petals spreading *S. cernua*

Epipáctis

(Gr. name of a plant)

Leaves white netted; lip sack-like *E. pubescens*

Epidéndrum

(Gr. *epi*-, upon, *dendron*, tree, from its habit)

1. Base of lip slightly joined to the column; flowers red and orange *E. vitellinum*
2. Base of lip completely joined to the column; flowers pink, green, and chocolate *E. venosum*

Cattleya

(Named for Cattley, an English collector)

1. Pseudo-bulbs 1-leaved; flowers 15 cm. in diameter *C. labiata*
2. Pseudo-bulbs 2-3-leaved; flowers about 10 cm. in diameter *C. Skinneri*

Láelia

(Named for Laellus, a Roman statesman)

1. Pseudo-bulbs compressed and margined; sepals and petals with a green line along the outside of the midrib *L. anceps*
2. Pseudo-bulbs not compressed or margined; sepals and petals not marked with a green line *L. autumnalis*

Dendróbium

(Gr. *dendron*, tree, *bios*, living, from its habitat)

1. Pseudobulbs black-hairy; flowers white, marked with yellow *D. formosum*
2. Pseudo-bulbs not black-hairy; flowers white, pink, and crimson *D. nobile*

Odontoglossum

(Gr. *odontos*, tooth, *glossa*, tongue, from the form of the lip)

Flowers few, large, yellow with red-brown markings; sepals lanceolate; lip rounded *O. pulchrum*

Oncidium

(Gr. *oncidion*, a little hook)

1. Lip yellow

a. Lip 4-lobed; other petals and sepals very small, rounded, greenish brown *O. variegatum*

b. Lip round, ob-cordate; other petals and sepals lanceolate, brown *O. ligularium*

2. Flower soft purple-rose *O. roseo-velutinum*

Glossary

- Achene** A dry, one-seeded fruit
Acuminate Gradually tapering to a point
Acute Sharp-pointed
Alternate Not opposite; with a single leaf at each place of attachment
Annual Lasting only one growing season
Anther The upper part of the stamen, containing the pollen; the pollen pouch
Apetalous Without petals
Apex Tip or upper end
Apocarpous Having or consisting of separate carpels
Apopetalous Having or consisting of separate petals
Appressed Lying close to or against another organ
Aquatic Growing in the water
Aristate Drawn out into a long needle-like point
Ascending Growing obliquely upward
Awl-shaped Narrowed upward from the base to a slender, rigid point
Awn A slender bristle-like structure
Awn-pointed Tipped with an awn
Axil The angle between leaf and stem
Axillary Borne in the axils of leaves
Axis A term generally applied to that portion of a branch which bears the flowers or the parts of a flower
- Barbed** Having a tip like a fish-hook
Basal Arising from the base
Beak An elongated tapering structure
Beaked Bearing a beak
Bearded With hairs limited more or less to a certain area of an organ
Berry A fruit in which the seeds are imbedded in a soft or fleshy substance
Bitenate Twice ternate
Blade The flat, expanded part of a leaf
Bract A leaf, usually small, standing below a flower or a flower-cluster
Bracteole A small leaf or scale on the pedicel below the flower
Bristle A stiff hair or any similar outgrowth
Bulb A short stem with fleshy scales, usually subterranean
Bulbets Small bulbs
Bulbous Like a bulb; bearing bulbs
- Capsule** A dry fruit consisting of two or more carpels
Carpel A simple pistil, or one member or division of a compound pistil
Catkin An elongated axis covered with scales all around that bear either stamens or pistils
Cell A cavity or chamber in an ovary
Chaff Thin scales between the disk flowers of composite heads
Ciliate Provided with marginal hairs
Claw Applied to the much narrowed lower portion of a petal
Cleft Cut about half way to the middle
Climbing Growing upon a support of some kind
Compound Composed of two or more similar parts united into one whole

- Compound leaf** One divided into separate leaflets
- Cone** An elongated axis bearing stamens or thickened scales with naked ovules; the flower and fruit of conifers
- Convolute** Rolled up lengthwise
- Cordate** Heart-shaped
- Corm** A swollen fleshy base of a stem
- Corymb** A flat-topped or convex open flower cluster
- Creeping** Growing along the ground
- Crenate** Scalloped; with rounded, shallow teeth
- Crenate-toothed** With rounded teeth
- Cyme** A flower cluster in which the terminal or middle flower blooming first; usually somewhat flat
- Deciduous** Falling off at the close of the growing period
- Declined** Bent down
- Decurrent** Applied to leaf bases, running down the stem
- Dentate** Toothed, with outwardly projecting teeth
- Denticulate** With small teeth
- Depressed** Vertically flattened
- Dioecious** Bearing pistils and stamens on different plants
- Disk** An enlargement of the axis of a flower around the base of the pistil; the group of tubular flowers in the Asteraceae
- Dissected** Cut or divided into numerous segments
- Divided** Lobed to the base
- Entire** Without lobes, divisions, or teeth
- Epigynous** Applied to a flower with the parts upon the ovary
- Erect** Standing upright
- Exserted** Projecting beyond the surrounding parts
- Fascicle** A dense cluster
- Fascicled** Borne in dense clusters
- Fertile** Bearing seeds, or bearing pollen
- Filament** The stalk bearing the anther
- Fleshy** Soft, containing more or less sap
- Flower** An axis bearing stamens or pistils or both; generally sepals and petals are associated with these
- Fruit** A ripened ovary, sometimes that part of the axis which becomes fleshy as the seeds ripen
- Glabrous** Without hairs
- Gland** A secreting surface or structure; any small appendage or protuberance having the appearance of such an organ
- Glandular** With glands or gland-like
- Glaucous** Covered with a bluish or white, fine, mealy substance; a bloom
- Globose** Spherical or nearly so
- Glume** The small scale of the spikelets of grasses and sedges
- Hastate** Arrow-shaped but with the basal lobes diverging
- Head** A dense cluster of sessile or nearly sessile flowers on a very short axis
- Herb** A non-woody plant which dies down to the ground annually
- Herbaceous** Of the nature of herbs
- Hirsute** With somewhat coarse, stiff hairs
- Hispid** With bristly stiff hairs
- Hypogynous** Applied to a flower with the other parts below the ovary
- Included** Not projecting beyond the surrounding parts
- Indehiscent** Applied to fruits that do not open or split to let out the seeds
- Inferior** Applied to an organ situated below another one

- Inflorescence** The portion of a plant bearing the flowers; mode of arrangement of flowers
- Integument** A protecting layer or coat, as the covering of a seed
- Internode** The part of the stem between two successive nodes
- Involucre** A group of leaves or scale-like leaves borne just underneath a flower or a close cluster of flowers
- Involucral** Of an involucre
- Irregular** Applied to a flower in which the petals, or other parts, are unlike
- Keel** The two fused lower petals of the flower of the Pea Family
- Keeled** Ridged, like the keel of a boat
- Lanceolate** Shaped like a lance
- Lemma** The outer scale of a grass flower
- Lenticular** Shaped like a lens
- Ligule** A strap-shaped organ, as the rays in the Asteraceae
- Ligulate** In the form of a strap
- Linear** Long and narrow with sides nearly parallel
- Linear-lanceolate** Narrowly lance-shaped
- Lip** Each of the main upper and lower divisions of a zygomorphic corolla or calyx; the peculiar modified petal of an orchid flower
- Lipped** Having a lip
- Monoecious** Bearing stamens and pistils on the same plant but in different flowers
- Nerve** One of the lines or ridges running through a leaf
- Net-veined** Veins running in various directions and connecting with each other
- Netted-veined** Veins running in various directions and connecting with each other
- Nodding** Hanging on a bent pedicel
- Node** The part of the stem which normally bears a leaf
- Nut** A dry, one-seeded, indehiscent fruit with a stony shell or covering
- Nutlet** A diminutive nut
- Obcordate** Inversely heart-shaped
- Oblanceolate** Inverse of lanceolate
- Oblong** Somewhat longer than broad, with the sides nearly parallel
- Oblong-lanceolate** Broadly lance-shaped
- Obtuse** Rounded or blunt
- Opposite** Applied to organs inserted at the same level but 180 degrees apart
- Orbicular** Circular
- Ovary** The part of the pistil in which the young seeds are borne
- Ovate** Shaped like the outline of an egg
- Ovule** A young seed
- Palet** The inner scale of a grass flower
- Palmate** Radiately lobed or divided
- Palmately** In a palmate manner
- Panicle** A compound flower-cluster, the lower branches longest and blossoming first
- Pappus** The bristles, hairs, awns and like structures which are borne upon the fruit in the Chicory and Aster Families
- Parasitic** Growing upon and getting its nourishment from some other plant
- Parted** Deeply cleft
- Peduncle** The stalk of a flower or of a flower-cluster
- Pedicel** The stalk of a flower in a flower-cluster
- Peltate** Shaped like a shield with a stalk attached in the middle below
- Perennial** Lasting from year to year
- Perfect** A flower having both stamens and pistles
- Perfoliate** Leaves appearing to be pierced by the stem

- Perianth** Applied to the leaves of the flower where not clearly divided into calyx and corolla
- Perigynium** The sack-like membrane enclosing the ovary or the anthers in the genus *Carex*
- Perigynous** Applied to a flower in which the parts are united into a cup around the ovary
- Persistent** Organs that remain attached after the growing season
- Petal** One of the inner set of flower leaves, usually brightly colored, of a corolla
- Petaloid** Resembling a petal, especially as to color
- Petiole** The stalk of a leaf
- Pilose** With long soft hairs
- Pinnate** Leaves divided into leaflets or segments along a common stalk
- Pinnately** In a pinnate manner
- Pinnatifid** Pinnately cleft to the middle or beyond
- Pistil** The central or terminal organ in a flower, containing the young seeds
- Pistillate** With pistils but without stamens
- Plumose** Having fine hairs on each side like a feather
- Plumy** Feathery
- Pod** A dry fruit made up of one carpel and splitting along two sides
- Pollen** The minute grains found in the anther
- Puberulent** With very short hairs
- Pubescent** With hairs
- Raceme** A more or less elongated axis bearing flowers with about equal pedicels
- Rachilla** The axis of a spikelet
- Rachis** The axis of a spike
- Ray** One of the marginal flowers in the Asteraceae
- Receptacle** The end of a flower stalk or axis bearing the floral organs, in the Asteraceae bearing flowers
- Recurved** Bent back
- Regular** Having the members of each part alike in size and shape
- Reniform** Kidney-shaped
- Resinous** Bearing resin
- Retorse** Turned downward or backward
- Rhombic** In outline like a rhombus; obliquely four-sided
- Rootstock** An underground stem
- Rotate** Flat and circular in outline; wheel-shaped
- Rush-like** Resembling a rush
- Salverform** Having a slender tube, abruptly expanded into a flat limb
- Samara** A winged fruit
- Scabrous** Rough
- Scale** A minute or much reduced leaf
- Scape** A leafless or nearly leafless stalk bearing a flower or a cluster of flowers and arising from the underground portion of a plant
- Scurfy** With small bran-like scales on the epidermis
- Segment** One of the parts of a leaf or similar organ that is cleft or divided
- Sepal** One of the outer set of flower leaves, usually green
- Serrate** With teeth projecting forward
- Serrulate** Finely serrate
- Sessile** Without a stalk or pedicel
- Sheath** The part of a leaf or leaf base which clasps or encloses the stem
- Sheathing** A term applied to the manner in which the base of a leaf wraps the stem
- Shrub** A woody plant; smaller than a tree
- Simple** Of one piece, not compound
- Sinuate** With strongly wavy margins
- Spadix** A fleshy axis bearing sessile flowers

- Spathe** A leaf-like structure standing below an inflorescence
- Spatulate** Spoon-shaped, shaped like a spatula
- Spike** An axis bearing sessile flowers
- Spikelet** A small few-flowered spike, the flower cluster of grasses and sedges
- Spine** A sharp, woody or rigid outgrowth from the stem
- Spiny** Provided with spines
- Spur** A hollow projection from the sepal or petal of a flower
- Stamen** The organ of a flower which bears the pollen
- Staminate** With stamens but without pistils
- Staminoids** A sterile stamen
- Standard** The large upper petal of the flower of the Pea Family
- Stigma** The top of the pistil to which pollen grains become attached
- Stipule** Outgrowths of, or appendages to, the base of a petiole
- Strap-shaped** Long and narrow in outline
- Style** The narrowed or pointed part of the pistil, bearing on its top the stigma
- Stylopodium** A disk-like expansion at the base of the style, as in the Apiaceae
- Submerged** Under water
- Subtend** To stand below on the axis
- Superior** Applied to an organ situated above another one
- Sympetalous** Having or consisting of united petals
- Syncarpous** Having or consisting of carpels joined together
- Teeth** The regular projections along the margin of a leaf
- Tendril** A slender coiling organ
- Ternate** Consisting of three leaflets
- Terrestrial** Growing on the ground
- Thorn** A stiff sharp-pointed outgrowth from the bark or rind
- Tomentose** Covered with dense, matted, wool-like hairs
- Trailing** Creeping along the ground
- Trifoliate** Having three leaflets
- Truncate** Terminated by a nearly straight edge or surface
- Twining** Winding spirally about a support
- Umbel** A flower-cluster with all the pedicels arising from the same point
- Umbellate** Borne in umbels
- Unarmed** Without spines, thorns, or prickles
- Valve** One of the portions into which some dry fruits split; a trapdoor-like opening in the pollen chambers of some anthers
- Vestigial** Reduced almost to disappearance
- Villous** With long soft hairs not matted together
- Webby** With a tuft of slender, curly hairs
- Whorl** A group of three or more similar organs, as leaves, radiating from the place of attachment
- Whorled** Borne in a whorl
- Wing** One of the two lateral petals of the flower of the Pea Family
- Zygomorphic** Applied to a flower with petals of different form

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